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> The thing I enjoy most about working [in ZBrush] is the ability to keep the creative ball rolling and never having to leave the zone

Jamie-lee Lloyd reveals how DynaMesh in ZBrush can allow free-form sculpting without topology constraints **Page 48**

Artist info

Jamie-lee Lloyd

Personal portfolio site
jamie-leelloyd.blogspot.co.uk
Country UK
Software used
ZBrush, Photoshop

Carlos Huante has brought to life some of the creepiest beings we've never imagined, which includes his most recent work on the *Alien* prequel, *Prometheus*. To add to the excitement of our feature interview with this superstar creature designer, covering his tremendous career in Hollywood, we received special permissions from the legend himself to re-create one of his original traditional sculpts in 3D. Turn to page 48 to see Rockstar artist Jamie-lee Lloyd crack open ZBrush to do Huante proud!

Original concept by Carlos Huante. Re-created for **3D Artist** magazine with permissions.

WIN!

3 Carlos Huante monster busts up for grabs on page 47

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MASTER ZBRUSH

Learn how to sculpt like a pro with DynaMesh!

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to the magazine and 116 pages of amazing 3D

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3. **A CD packed full of creative goodness**
4. Interviews with inspirational artists
5. **Tips for studying 3D or getting work in the industry**
6. The chance to see your art in the mag!

Hello and welcome to what is, quite frankly, an awesome issue of 3D Artist! If you're a CG community lurker (like us), you'll be well aware of all the incredible character artists out there, bringing unimaginable beings to life in extraordinary detail. Here we offer everything you need to join them in confidence. Take inspiration and advice from legendary creature designer Carlos Huante, and tackle your own projects in ZBrush, 3ds Max and Maya with artists from the likes of Rockstar North and Ninja Theory leading the way.

If you're fresh to the 3D scene, our feature on the best 3D software available will provide helpings of tips, while the Workshop projects will get you to grips with your favourite tools in no time. Enjoy!

Lynette Clee, Deputy editor

This issue's team of expert artists...

Jamie-Lee Lloyd

Currently working at Rockstar North, Jamie sculpted into the wee hours to bring Carlos Huante's vampire bat bust to life in ZBrush

Daniel Baker

Get your brushes out and enjoy a class on designing characters for environments by this talented concept artist at Ninja Theory

Daniel Crossland

Taking Daniel Baker's unique character concept to fantastic levels, Daniel takes us from ZSphere to final render and postwork

José Alves da Silva

José is back! Here to teach us the art of stylised characters, revel in the talents on show and create your own 3D illustrations

Scott Robertson

We're honoured to have the founder of Design Studio Press teach us his texture-bombing techniques in modo!

Digital-Tutors

The masters of video training swing by to help us perfect destruction in Maya, and keep us on the road to believable 3D

Adam Martinakis

This winner of several art competitions steps up to teach us how to better use DAZ models for creative illustrations

Paul Hatton

Delving into his 3ds Max skillset, Paul lends a helping hand this issue with a class on how to bake better textures for games

Roald Høyer-Hansen

Tree-huggers everywhere will enjoy a little birch tree creation in Unity. Time and patience at the ready for this one!

Jahirul Amin

Putting a geeky passion for rigging to good use, this Bournemouth NCCA lecturer explains FK spines for top results

Ross Board

When Ross wants a natural look, he turns to MassFX in 3ds Max to create a little randomisation for more realistic results

James Morris

Getting hardcore, James inspects Intel's new Ivy Bridge Core i5 and helps our creative minds make sense of hardware systems

Sign up, share your art and chat to other artists at www.3dartistonline.com

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3DArtist

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"I live in this world of crazy things that swim around in my head"

Carlos Huante, creature designer on *Prometheus*, invites us into his world. Page 42

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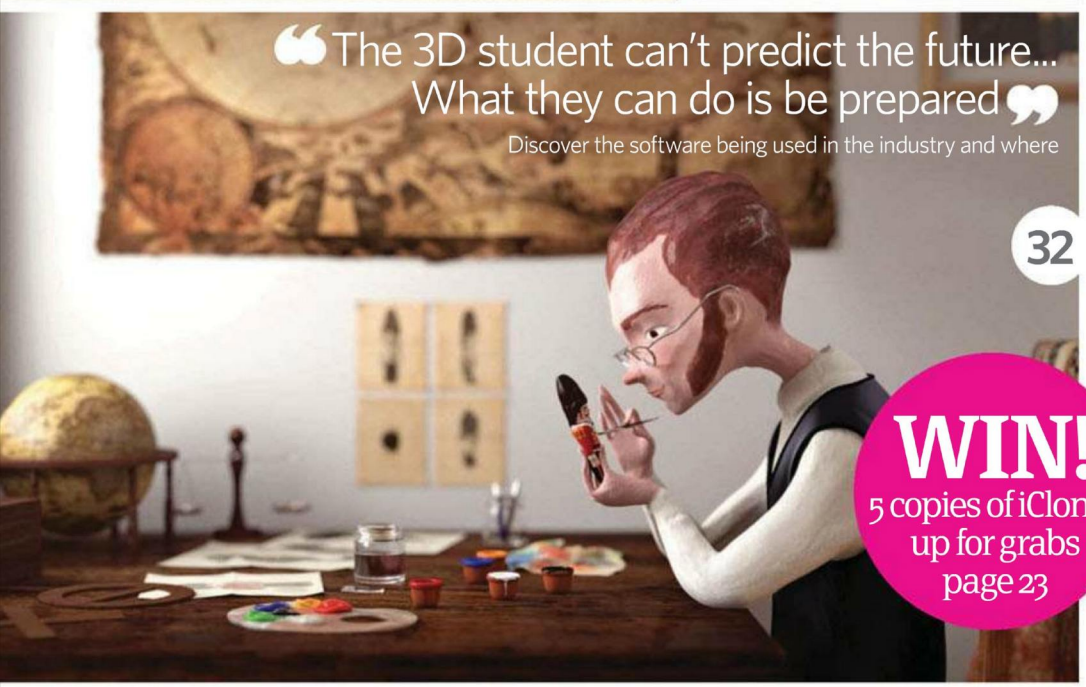

"The 3D student can't predict the future... What they can do is be prepared"

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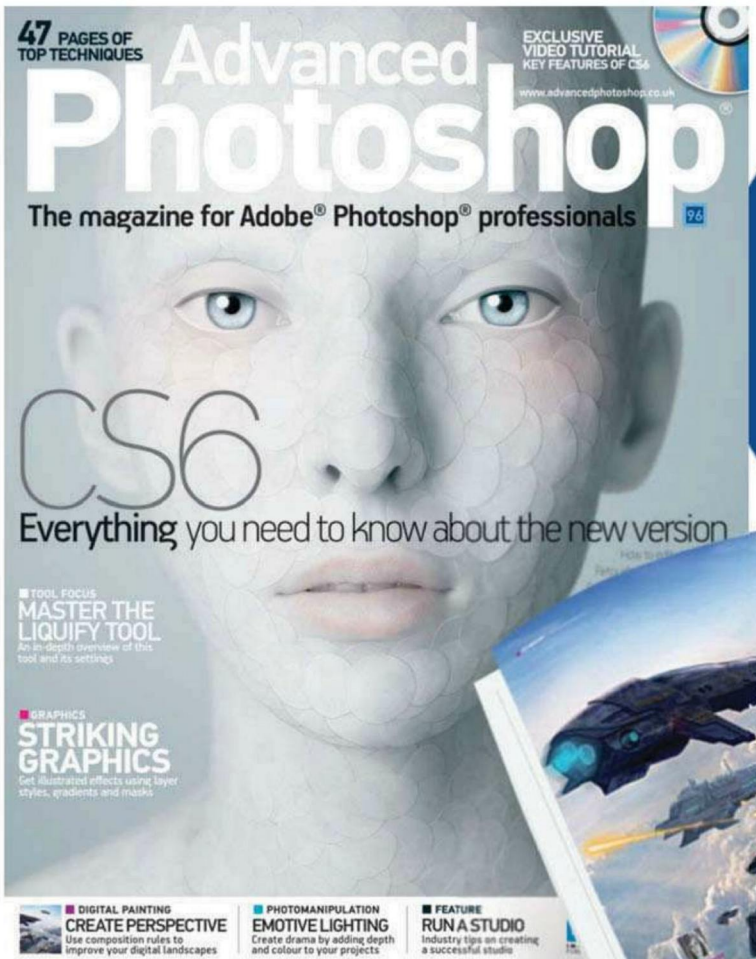
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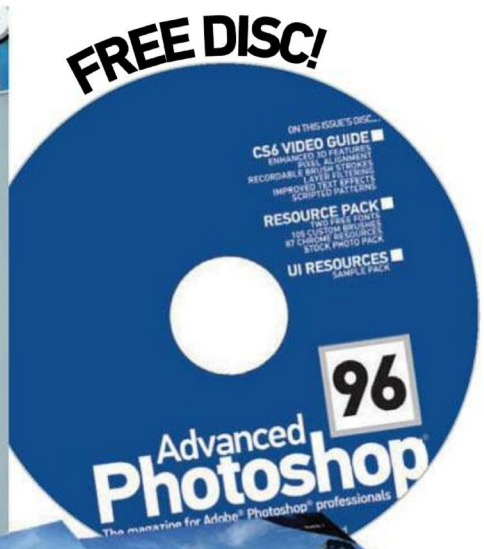

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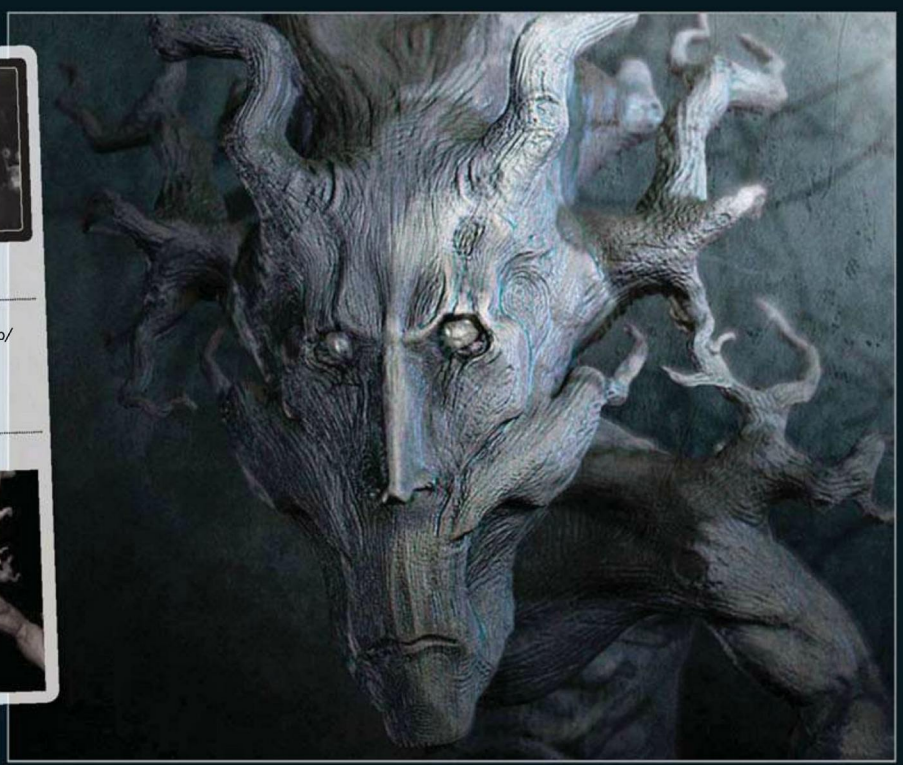
WELCOME TO THE GALLERY

Five pages of great artwork from the 3D community

Images we love!



Artist info

Nacho Riesco Gostanza

Personal portfolio site
www.wix.com/riesconacho/illustracion

Country Spain

Software used
ZBrush, Photoshop

Work in progress...

Featured artists

Nacho Riesco Gostanza

Nacho's efforts to increase his sculpting skills has definitely paid off

Jamie-lee Lloyd

This brilliantly executed character is equally threatening and alluring

Takao Shigeyama

Takao's design certainly has plenty of menacing bite to contend with

Josh Tiefer

An excellent demonstration of mixing traditional and digital techniques

Tiago Hoisel Ferraz

This little bundle of 3D joy is bound to put a big smile on your face

"The aim of this project was to improve my sculpting skills. I wanted to practise sculpting textures so I decided to make a tree man. It was the first model where I used HD geometry"

Nacho Riesco Gostanza, *Treeman*, 2012

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"This piece was created entirely in ZBrush using DynaMesh, ShadowBox and the new Clip/Insert brushes. After sculpting the final pass I PolyPainted the SubTools, lit the scene with LightCaps and composited the final render passes from ZBrush in Photoshop. I worked into the background with smoke brushes and added a wash of colour to bring it together!"

Jamie-lee Lloyd, *Sheibe*, 2012

The team Loves

"We love the detail that Jamie has sculpted into this fierce gal's accessories, especially the gloves and gas mask. Her deadly stare is pretty intimidating too! Poker, anyone?"

Lynette Deputy Editor

Artist info

Jamie-lee Lloyd

Personal portfolio site
jamie-leelloyd.blogspot.co.uk

Country UK

Software used
ZBrush, Photoshop

Work in progress...

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Artist info

Takao Shigeyama

Personal portfolio site
http://hw001.spaaqs.ne.jp/t-shige11/index.html

Country Japan

Software used
ZBrush, Photoshop

Work in progress...

The team Loves

"This image is as beautiful as it is frightening – the colour palette is awesome, and that jaw! Well, you wouldn't want to get between those teeth"

Lynette Deputy Editor

"I wanted to design a unique and scary creature based on human anatomy. I also just wanted to create something for fun, freely!"

Takao Shigeyama, *Howling,* 2011

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The team Loves

3D is a great tool for concept art when beginning a painting. ZBrush has helped Josh establish all the muscle definition and lighting to paint a believable armoured character

Lynette Deputy Editor

"This was originally an exercise in armour design; I wanted to play with shapes and make an armour suit that had some creature-like elements... I wasn't very inspired building a suit of armour without a character, so I decided to throw a figure in there, and I think it helped peak my interest and take the image further"

Josh Tiefer, *Soldier,* 2012

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Artist info

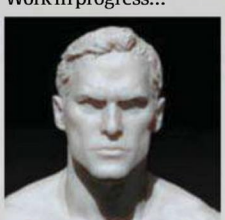
Josh Tiefer

Personal portfolio site
www.jtieferart.blogspot.com

Country USA

Software used
ZBrush, Photoshop

Work in progress...



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Tiago Hoisel Ferraz

Personal portfolio site http://tiagohoisel.blogspot.com.br, http://technoimage.com.br

Country Brazil

Software used 3ds max, Photoshop, V-Ray, ZBrush

Work in progress...

The team Loves

I'm a huge fan of Tiago's 2D illustrations, it was exciting to see this 3D image hit the online communities – utterly flawless

Lynette Deputy Editor

This is an old concept that I thought it might be [good] to start studying. I am very grateful to the artists Victor Maiorino, Victor Hugo and Pedro Conti who are my teachers! **Tiago Hoisel Ferraz,** *The Shooter*, 2012

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Unity raises the game

Unity and MADFINGER Games team up to reveal 3D game-development secrets with a free sample project

The game-development engine Unity has been going from strength to strength recently, and 2012 is looking to set another benchmark. Version 3.5 of the engine was released in February with new, boundary-pushing rendering and AI tools. In April the company reached a record number of registered users and now it's released a free sample project level from the mobile game *SHADOWGUN*.

"Unity is about democratising game development through a powerful game engine and polished tools that anyone, anywhere can sit down and use to create large or small projects," explains CEO David Helgason. "We want to provide awesome tools that level the playing field between small and large developers." In that spirit, the engine is available to download in both a Pro and Free version, catering for the indie and the professional developer alike. CEO of MADFINGER Games Marek Rabas found Unity the obvious choice: "We wanted a multi-platform engine, with simple but powerful tools. So it was easy," he says. Helgason cites the "efficient asset pipeline as well as fast prototyping, testing and gameplay iteration" to explain why more and more developers are discovering and creating with the engine.

The online community and Asset Store are other advantages. "Unity [has] a fantastic open community and when we worked on our first game, we [learnt] a lot from them... on forums," says Rabas, "so it was time to [give] something back."

Developing for mobile platforms

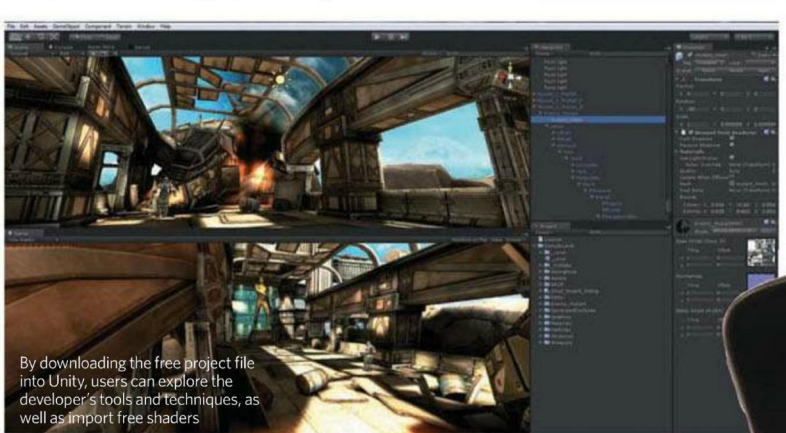
Why Unity Pro's features make it perfect for game creation

The app market is booming and building games for mobile devices is the ideal platform for new developers. "I love how easy it is to build a game and release it on different platforms [with Unity]. Just switch platform, press Build and it's working," says Marek Rabas. "It's very easy in Unity to tweak all the Graphics parameters to improve performance thanks to its flexible shading language and per-platform quality settings," explains David Helgason.

Mobile shooter *SHADOWGUN* is a console-quality game with tactical combat and third-person action

That is exactly what Unity is doing in the form of the free sample level from mobile shooter *SHADOWGUN*. The project file can be downloaded into Unity so users can see techniques, how the developers optimised scenes and applied assets. Unity hopes this level of insight will benefit all of its developers, as Helgason explains: "Giving the rest of the development community the chance to learn from [*SHADOWGUN*] and actually have access to the shaders and other technology that MADFINGER Games used will help everybody make better use of Unity and make better games in general."

With a new animation engine being prepared for the next version and a wider, global focus, Unity and its community are set to continue expanding. More expertise, assets and information to share will enable developers to put the technology to the most productive and creative use. Download the sample level from http://tinyurl.com/shadowgun-sample or visit Unity's main site at http://unity3d.com.



By downloading the free project file into Unity, users can explore the developer's tools and techniques, as well as import free shaders

> "We want to provide awesome tools that level the playing field between small and large developers"
>
> **David Helgason,** CEO Unity Technologies

"*SHADOWGUN* is a terrific example of how to make a game look amazing on mobile devices" – David Helgason

Games created in Unity

A look at just some of the popular games produced with the powerful 3D engine

It's not just combat-based shooters or mobile apps that have emerged from the Unity community – your favourite game may have been built using the engine. Some of the best include the gravity-defying *Rochard* (available on the PlayStation Network), sci-fi MMORPG *Battlestar Galactica* and free, web-based aerial adventure *Sky Legends*. We're also excited about the beautiful-looking *Pid* from developers Might and Delight – a rich and strategic adventure game set for release later this year.

A 'Fly, build, fight' is the tagline for this web-based game created in Unity

B Check out this beautiful video for the evolution of *Pid* on Unity's blog http://tinyurl.com/pid-evolution

C A unique-looking platformer with some classic action and co-op capabilities, *Pid* looks set to be another Unity success story

Masterpiece

Hellfire Spider

A medium-hopping 3D generalist, Robert Henry describes how this piece was an act of "productive self sabotage"

Robert Henry www.behance.net/roberthenry

"I have found a near-perfect blend to the way my brain is wired through modo and MoI. modo is a fluid and elegant tool for exploration" – Robert Henry

Hellfire Spider was inspired by futuristic vehicle designs of the Thirties and Forties

"I have been working seriously in 3D for the last 12 years and have thought in 3D [since] school," says Robert Henry. "I just moved from cardboard tubes and glue to better tools." The pleasure he takes from exploring new mediums shows in his wide and varied portfolio: "I enjoy working in many disciplines... I would go nuts if you told me I had to pick just one.

"[There] are personal twists and turns I add (in the absence of a client) that help me to explore and discover elegant solutions, overcome barriers and refine the overall look... Think of it as productive self-sabotage." He describes *Hellfire Spider* as no exception: "The spider is chock full of puzzles at every turn... Like the constant curvature and dynamic flow of the legs and abdomen where no joint is in line [with] the same axis... A testament to the falloffs in modo."

Blog watch

A guide to inspiring and informative blogs

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3D Sketchbook

Striving for perfection

Lead character artist for Capcom Vancouver, Bobby Bath discusses the future of game art

Bobby Ranvir Bath www.ranvirdigital.com

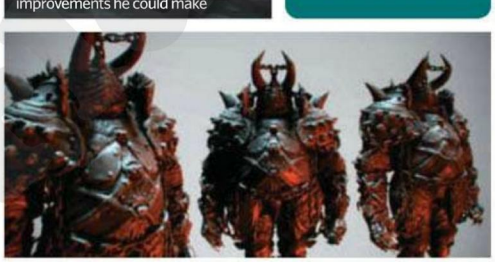
Bobby Bath has been in the games industry for nine years, working for EA SPORTS and BioWare before landing the role at Capcom Vancouver. "My favourite things in ZBrush [are] the powerful new DynaMesh and FiberMesh features in ZBrush 4R3... I had the chance to be on the Beta for R2 and felt the Lightcap enhancements were great. The Polypaint, Subtool and super-high poly counts are big reasons why ZBrush is the sculpting package of choice at Capcom," he says.

It's not just ZBrush improvements that are having an impact on the games world, as Bath explains: "The next generation of hardware and software is approaching fast. PS3 and [Xbox 360] shaders were a big improvement... but the next jump should really allow for advanced shaders and lighting... Vector Displacement maps, true SSS and DX11 tessellation will all make their way to next gen. It is exciting to see the latest advancements in UDK and CryENGINE."

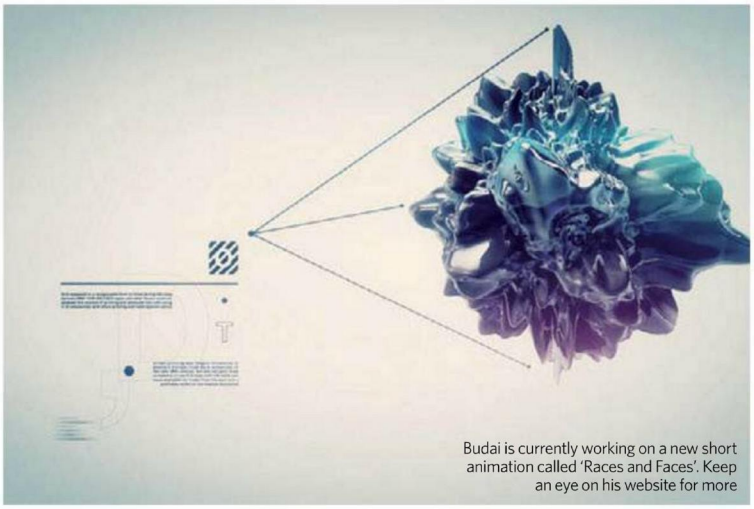
Bobby says he doesn't have a favourite piece as he sees too many flaws and improvements he could make

Learn to use 3D Coat

"The total freedom of voxel sculpting is quite liberating. The boolean-like tools are great for hard-surface modelling," says Bath. "I really like the Snake, Muscle and Cutout tools... It has a very useful mode that allows you to paint diffuse, normal and specular on your mesh... You can paint with symmetry even if your UVs aren't symmetrical."



"An important thing to bring to the table is a well-rounded portfolio in terms of 3D, 2D and conceptual abilities" – Bobby Ranvir Bath



Budai is currently working on a new short animation called 'Races and Faces'. Keep an eye on his website for more

behind the scenes

Race against time

With a studio to promote and a three-day deadline, creating this animated piece rekindled Roland Budai's love for 3D art

Roland Budai www.behance.net/rolandbudai

Freelancing from a studio with three designer friends, Roland Budai decided they needed to produce a promotional video for their brand Didot. He explains: "I was in a big hurry because I wanted to participate in a competition." Budai ended up completing the short in just three days. The challenge and exciting possibilities it offered have made him determined to focus his artistic skills on 3D animation: "I started to use 3D for identity visualisation, but to tell the truth it didn't interest me after a while... I did different kinds of jobs, such as book illustration, mascot design, several identity design projects, posters for theatres and so on. [Recently] I have been creating animation."

Roland used CINEMA 4D and After Effects to create the Didot animation. "I don't use the word unique for it because there are other artworks similar to mine, but there are only a few with a style that you can really enjoy [that] have a message too. I didn't plan to make a revolution, I simply wanted to create something attractive." You can watch the animation and keep up with Budai's work here: http://tinyurl.com/7je64lf.

Free 3D Resources

Support for 3D artists

Download tutorials and models from this site that covers 3ds Max, V-Ray and Photoshop

VisCorbel

Web: http://viscorbel.com

The VisCorbel website has a huge library of resources and assets for artists working in 3ds Max, V-Ray and Photoshop. Many of the individual, downloadable models are free, including interior decorative objects perfect for arch vis, while file packs for creating specific scenes and extensive video tutorials start from €19. There are also guides and tutorials on the site to supplement the resources, with clear step-by-step instructions and illustrative screenshots.

The video tutorials are comprehensive, covering large topics and including all textures and PSDs

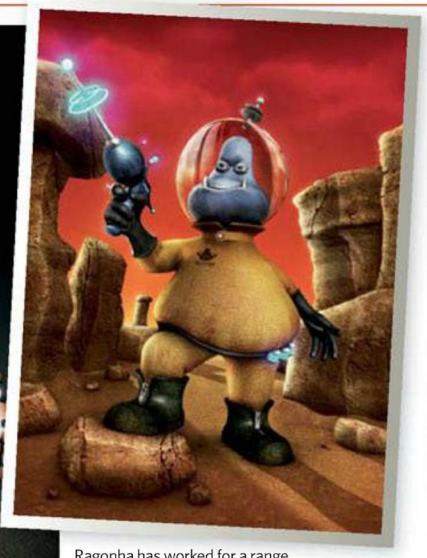
Extreme Redesign winners

Stratasys's Dimension 3D Printing announce the winners of their challenge

The competition was to create CAD models suitable for a FDM printing process. "With more and more schools that have engineering courses and are teaching CAD (even in secondary schools), the interest, participation and quality keeps improving," says Joe Hiemenz, technical communications manager at Stratasys. Visit www.dimensionprinting.com for more.

Ragonha works as a 3D generalist for a digital media company, producing 3D renders, animation and video content

SEE YOUR WORK HERE!
3DArtist Community
Contact **Lynette** with your latest news at **lynette.clee@imagine-publishing.co.uk**



Ragonha has worked for a range of clients and agencies, including Coca-Cola, Sorriso and Brazilian TV show *Livre Acesso*

Artist spotlight

DIY design

Fabio Ragonha decided to turn his hand to web design and found a new world of creative possibilities

Fabio Ragonha www.fabiomr.com

When they decided their band needed a website, a professional web designer was beyond the means of Fabio Ragonha and his friends, so he decided to take on the task. "We couldn't afford a web designer, [so] I started doing it by myself. I liked it so much I started getting some freelance to do. Some time later I started working as a web designer for advertising agencies, then I met some people from an agency who were learning 3D... That was the moment I started studying 3D and I've never stopped," he says. Now Ragonha is a 3D generalist for a digital media company based in São Paulo, Brazil, but his learning process is far from over: "I basically work with 3ds Max, After Effects and Photoshop... I've made some video projects and I'm really enjoying working with them because I'm sure they are going to improve my skills."

WorldMags.net

"It was interesting to see some of the group using new technology" – Craig Ramsay

Maximum inspiration

A new group for 3ds Max users gets off to a flying start in Edinburgh

A forum to meet likeminded people, share feedback, get inspired and seek new opportunities is essential for a working artist. It was with this in mind that the 3ds Max Edinburgh User Group was created. "[It] was set up as a reaction to the very successful 3ds London User Group... I thought it would be a good idea to start a similar user group in Edinburgh to cater for Scottish 3ds Max users," says organiser Craig Ramsay.

The first meeting was a resounding success, with members sharing a range of work, talks from industry professionals Jamie Gwilliam (Autodesk) and James Mooney (Render Nation), competitions and more. The next is scheduled for 5 July, so visit www.3dsedinburgh.co.uk to find out more, or keep up on twitter: @3dsedinburgh.

Inspiration corner

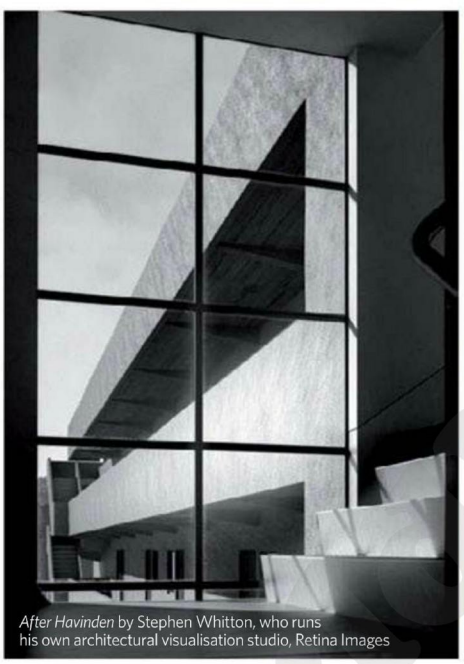
SAI collective exhibition

Members of the Society of Architectural Illustration exhibit in a range of mediums

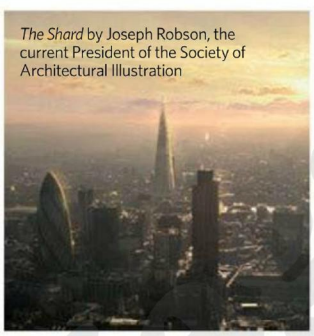
Jacquelyn Jubert and Jospeh Robson www.anisegallery.co.uk

A showcase of diversity and technical skill, the recent display of work from the Society of Architectural Illustration at the Anise Gallery, London, included traditional illustrations, photography and 3D imagery in the first exhibition of its kind. Co-curator Jacquelyn Jubert explains how SAI "provide[s] architects, developers and designers with high-quality visual representations for use in concept design, presentations and marketing, helping to communicate ideas and bring architecture to life."

The collection is an acknowledgement of the complementary nature of traditional and digital mediums in this field, as exhibiting artist Derek Jackson discusses: "Traditional drawing skills are vitally important for any aspect of digital 3D work. This exhibition clearly shows the whole spectrum of architectural illustration styles, and the strengths of each medium. It serves as a clear reminder of why all styles are still valid in terms of representing the built form!" You can see images from the exhibition on the Anise Gallery site, or visit www.sai.org.uk for more about SAI.



After Havinden by Stephen Whitton, who runs his own architectural visualisation studio, Retina Images



The Shard by Joseph Robson, the current President of the Society of Architectural Illustration

Interior by John Walsom, who has worked as a theatre design consultant and architect

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on Twitter

3DArtist Team choice

Product of the month

Fitbit Ultra

» **Fitbit**
Stockist: www.firebox.com
Price: £80
We say: This tiny clip slips into a pocket and measures exactly how active you are in your daily routines. The built-in pedometer counts steps, gives feedback on how many calories you've burned and an altimeter logs how many stairs you've climbed during the day. When you get home, the data all syncs wirelessly to your computer, enabling you to log everything onto your personal Fitbit account. From there you can view your progress and monitor your overall health. If you use the included wristband you can even keep track of your sleep pattern, meaning every aspect is covered to leading a healthy life A.

B Notebook Series 5 550P

» **Samsung**
Stockist: PC World
Price: TBC
We say: This soon-to-be-released powerhouse of a laptop is set to impress. With a brand new Core i7 Ivy Bridge processor and a super-slick NVIDIA GeForce GT 650M 2GB graphics card, it will undoubtedly handle everything you can throw at it while hardly breaking a sweat. It's got plenty of media options too, as the 17-inch model includes a Blu-ray drive and JBL optimised sub-woofer speakers for great sound.

C G-RAID with Thunderbolt

» **G-Technology**
Stockist: www.g-technology.com
Price: TBA
We say: This massive drive comes in sizes of up to 8TB and includes the faster consumer transfer port available right now: Thunderbolt. The technology transfers data at up to twice the speed of USB 3.0 and with so much space built in, you'll be working faster than ever. While it's currently limited to Apple computers only, Thunderbolt-enabled PCs will be launching in a few months, so stay tuned.

D Wi-Drive

» **Kingston**
Stockist: Micro Anvica
Price: From £45/$50
We say: This solid-state drive is a little magical. Add your documents, music, photos and movies just like any other external drive, disconnect it and switch it on. You can then browse and view all of this content wirelessly on your iOS, Android smartphone, or an iPad by connecting to the wireless network it creates. Up to three users can view different files at once, making this the perfect accessory to keep friends and family entertained throughout the summer.

E JAMBOX

» **Jawbone**
Stockist: Apple
Price: £160/$200
We say: While it might look small, the JAMBOX manages to pump out up to 85 decibels of sound thanks to its dual drivers packed inside a small dome speaker. It's completely wireless, with a built-in battery and Bluetooth connectivity making it the perfect accessory to throw in your bag before heading down to the beach in the summer sun. There's a built-in microphone so you can enjoy wireless and hands-free phone calls.

F BubbleScope

» **BubblePix**
Stockist: www.bubblepix.com
Price: £70
We say: We've heard a lot of claims from apps and accessories that claim to take full 360-degree panoramas on your phone or camera, but this is the first one that delivers in brilliant style. Attach the pocket-sized clip to your phone and snap a photo in the BubbleScope app in less than a second. A full 360-degree image is taken, which you can swipe around to view. It also works with videos that can be shared online.

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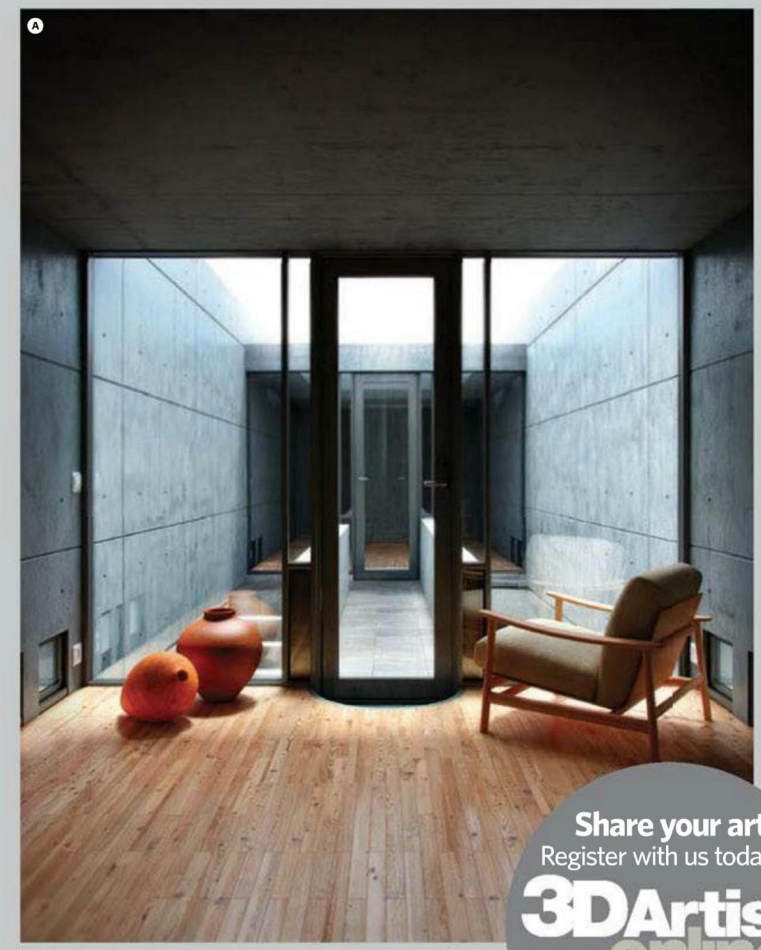

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Register with us today at
3DArtist online .com
www.3dartistonline.com
to view the art and chat to the artists

Pictures of the week

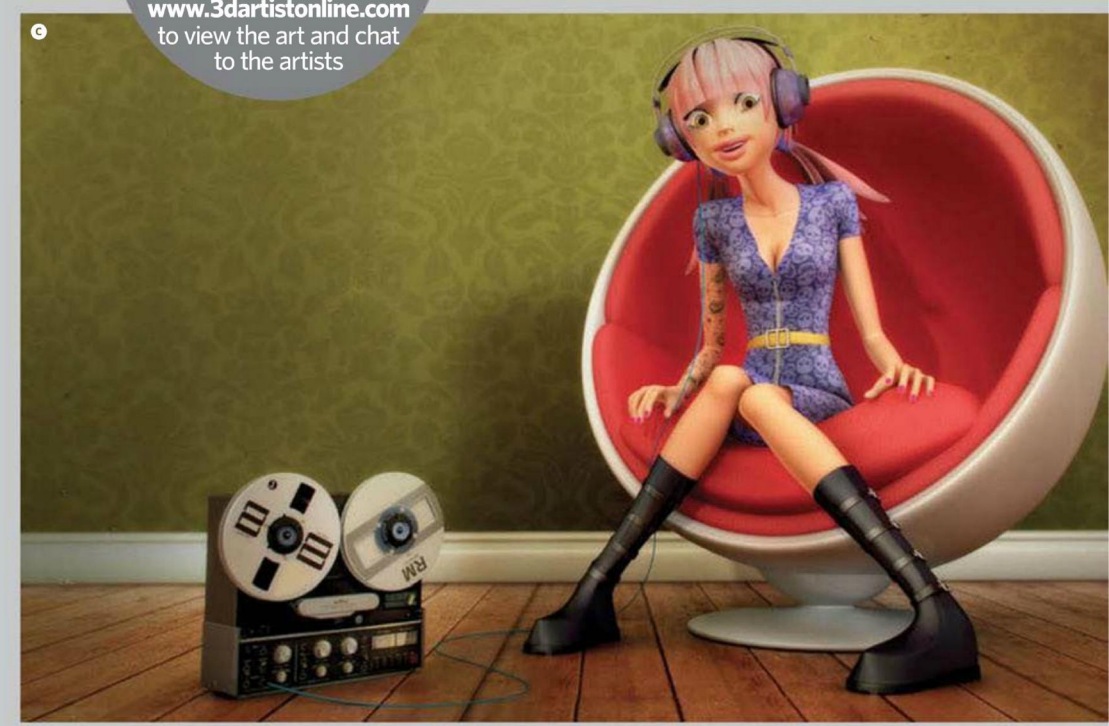
THESE ARE THE IMAGES THAT WERE AWARDED PICTURE OF THE WEEK IN THE LAST MONTH

A Azuma Design
» **Matheus Passos**
Matheus says: "*Azuma Design* is a true home of the original inspiration *Azuma House* by the Japanese architect, Tadao Ando"
We say: "Fantastic use of HDR images and materials!"

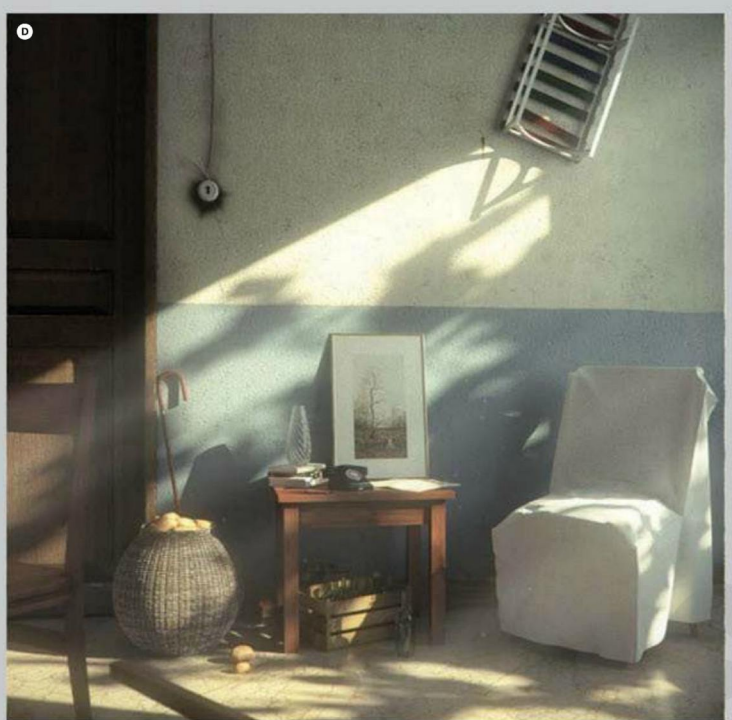
B Blazing chaser
» **Alexandr Novitskiy**
Alexandr says: "[The] Ford Falcon 1973 is a famous car driven by Mad Max in the first two movies. I like it, and decided to make something interesting with it"
We say: "We love a good muscle car battle. Nice VFX!"

C Headphones
» **Nik Faulkner**
Nik says: "This is my attempt at a toon in a vague pin-up style. I wanted to try for a slightly more realistic render while maintaining the stylised feel"
We say: "This LightWave render has a great style!"

D July morning
» **Damir Karimov**
Damir says: "This warm July morning is serene and carefree. Programs used include 3ds Max, Maxwell Render and Photoshop"
We say: "Beautiful lighting – a perfect summer's day!"



Picture of the month



Have a break!

» **Patric Verstraete**

Patric says: "After some crazy and hard work at the beginning of this year, I needed a break, and the idea came to me to make a scene just to relax"
We say: "The lighting perfectly captures a sense of the outdoors inside"

Stylised Street

» **Michael Wilde**

Michael says: "This is an environment I made for a university film called 'Just Another Day'. I modelled and textured everything apart from the sky, which was painted by Io Maniego"
We say: "This scene looks like the basis of a great animation"

MM2 Knife 16 Tube Runner

» **Simon Williamson**

Simon says: "This model will be the focal point in a more descriptive and atmospheric scene. It was modelled using Rhino and rendered using KeyShot"
We say: "This is an excellent futuristic racing machine!"

Water spring

» **Kleanthis Gyftokostas**

Kleanthis says: "I tried to make a water spring of some sort; the background trees were custom made as my first attempt at an oak tree. The rest of the vegetation was bought from Cornucopia3D"
We say: "Vue 10 has been used to great effect here on this very fertile land"

Have your say

Email or get it touch via Facebook or Twitter to tell us your thoughts about the magazine or share your success

You tell us

Win this beautiful little sketchbook, courtesy of #3DTotal!

Simply tell us what you'd doodle on the first page, if you were to win. Best comment today wins!

Jamie Read Sketch some little environment pieces for inspiration to model in 3ds Max, slowly helping me on my way to getting a job in the videogames industry.

Craig A Clark I'd actually let my girlfriends 6 y/o daughter doodle on it, as her fresh and untainted imagination knows no boundaries. Additionally, she [already] draws better than me!

Gemma Pullinger A self-portrait of the grin on my face when I ace my interview next week!

Andrew Segal Well I think there is nothing better than starting with a large sketch of a cosmonaut fighting off a giant space nautilus, that's how all my sketchbooks start. Then usually there's a goat on the opposite page, just staring at the frantic battle between man and space behemoth. I love the Ian Mcque pictures, but my sketchbook looks like this anyway, all ships and cosmonauts, followed by goats, then people on trains.

Sean Hallenbeck [I'd draw] the Perfect Circle.

Georgina Lake Big character eyes study always draw eyes first at the start of a new sketchbook, it's like giving it a personality on the [very] first page.

digital-tutors

www.digitaltutors.com is a learning resource site boasting a library of 17,000 video-based CG lessons.

THE AUTHOR OF THIS ISSUE'S STAR LETTER WINS A MONTH'S FREE SUBSCRIPTION TO DIGITAL-TUTORS WORTH $45

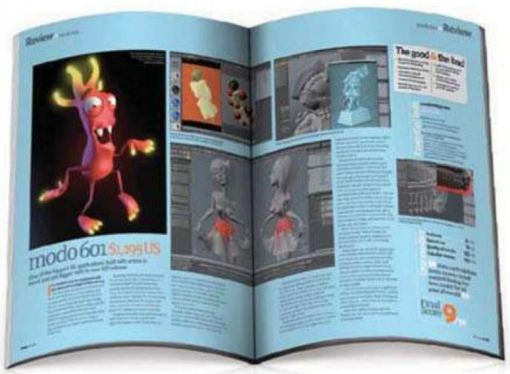
Star letter

Concept vehicle

Hi, I would like to share couple of images that I created using Maya, KeyShot and Photoshop. It's a sports car design of my own. I am a big fan of old-school/classic types [of] sports car and I didn't want to make it look too futuristic, but [still] have interesting shapes and maybe small elements of an old [design]. I used my second name to name this car.

Deividas Bakutis

Thanks for sharing your work with us, Deividas, we're always pleased to champion artists creating new concepts such as this – you have a great eye for composition! As our Star Letter winner this month, we hope you'll find a month's free subscription to Digital-Tutors useful in the design of many more new and exciting vehicles. Keep up the good work!



Credit where it's due

My article in 3D Artist mag although I did NOT get credit for it! My images too #modo http://instagr.am/p/LG5uYjPjnH.

Warner McGee @warnermcgee, via Twitter

Our house style stipulates that our reviews aren't generally tagged with the authors' name, but you were of course mentioned in our team of experts on page four of issue 41 to highlight your work in that issue. Thanks Warner!

iTunes or Zinio?

Is there any real difference between buying a Newsstand app or the Zinio app? Why do you offer it on both? What are the pros and cons of each?

Chris, via Facebook

The Zinio app is available on Apple products, Android, Blackberry, PC Desktop, Mac Desktop and so on, so if you get a new phone/computer you can use it on there. You can have it on several products at once under your user details too. The Newsstand way is only available for Mac products, which is still great, it just depends what/where you want to read your magazine as to which route you want to take.

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OVER £1,000 WORTH OF ANIMATION SOFTWARE TO BE WON!

FIVE READERS WILL WIN A BOXED COPY OF ICLONE5 PRO, PLUS THE NEW PHYSICS TOOLBOX

To celebrate the launch of the new Physics Toolbox, 3D Artist magazine is teaming up with Reallusion to give away a copy of iClone5 PRO plus the Physics Toolbox to five lucky readers. iClone5 PRO is an all-in-one studio that has been built from the ground up for quick results. With a powerful engine for real-time animation and motion capture, iClone5 PRO enables users to literally edit as the animation is running!

The Physics Toolbox (download only) is the perfect accompaniment to iClone5 PRO for those looking to harness the power of physics in their animations. Whether it's used to construct complex mechanical models or as a standalone tool for controlled particle dynamics, the Physics Toolkit can bring animations to life with rotations and explosions in a few simple clicks!

WHAT IS THE PHYSICS TOOLBOX?

The Physics Toolbox is a plug-in that enables iClone users to master and control the laws of physics, using the iClone Physics in their animated projects with more than 30 powerful tools. Now you can create and manipulate realistic physics interactions with 3D models in real-time for speedy results!

HOW TO ENTER

You can send in your answer by email to 3dartist@imagine-publishing.co.uk. Please ensure you put 'iClone5 competition' in the subject header and include your name, shipping address and answer in the body text of your email. Alternatively, to enter the competition by post, simply send your entry to: iClone5 competition, 3D Artist Magazine, Imagine Publishing, Richmond House, 33 Richmond Hill, Bournemouth, Dorset BH2 6EZ. The closing date for all entries is 1 September 2012. Winners will be selected at random from correct entries and announced after the deadline.

WHY iCLONE5 PRO?

- No extensive 3D experience needed – in the box you get everything you need to produce high-quality projects, without the need for complex modelling, rigging and keyframe animation.
- Its flexible workflow enables project outputs to other 3D tools including SketchUp, 3ds Max, Blender, Maya, Poser, ZBrush and more.
- Embedded content and expandable libraries feature character bases, customisable facial and body templates, outfits, props, motion profiles, particles and post-effect templates to help you animate on the spot.
- iClone5 PRO also has an in-house mo-cap studio, enabling you to directly bring in motion data without complex pipelines, date conversions, or expensive suits – simply launch it with any off-the-shelf depth camera and animate!
- Easy-to-use conversion tools give you the option to quickly bring in motion data and content from external apps.

TO WIN SIMPLY ANSWER THE FOLLOWING QUESTION:

ICLONE5 IS DESIGNED FOR WHICH OF THE FOLLOWING:

A: Real-time 3D animation **B:** Real-time 2D animation **C:** Real-time 4D animation

TERMS & CONDITIONS Imagine Publishing and its partners have the right to substitute the prize for a similar item of equal or higher value. Employees of Imagine Publishing, Reallusion, their relatives or any agents are not eligible to enter. The editor's decision is final and no correspondence will be entered into. Prizes cannot be exchanged for cash. From time to time, Imagine Publishing or its agents may send you related material or special offers. If you do not want to receive this, please state so clearly in your competition entry. All entrants agree to participate in any promotion related to this competition.

Adapt to survive

After 21 years of top-class imagery, Saddington Baynes, a pioneer of CGI in automotive advertising, reveals how constant evolvement has been the secret to its success

Words by **Michael Burns**

Ten key events in SB history

Chas Saddington and Dick Baynes found the company to take advantage of the new digital retouching technology
Chris Christodoulou joins the company as its head retoucher
James Digby-Jones joins the company as a retoucher
SB adopts CGI, pioneers introduction into automotive marketing industry
Chris Christodoulou and James Digby-Jones succeed the founders [currently MD and owner, executive creative director respectively]
SB begins creating CGI imagery for Honda Europe
Creates immersive online visualiser for Infiniti Europe
Shelfer image chosen for the front cover of Archive
SB rebrands to reflect evolution into true multiplatform studio
SB launches interactive platform to bridge void between print and digital media
1990
1995
2000
2005
2010
2015

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Rise of the retouchers

This creative studio offers visual content over multiple platforms

Saddington Baynes

Studio name Saddington Baynes
Location London
Expertise Photorealism, automotive imagery, CG creatures and characters, landscapes, architecture, fluids and fauna
Key clients Toyota, Honda Europe, O2, BMW, Diageo, Stella Artois, Shelter
Company history Formed by advertising retouching artists Chas Saddington and Dick Baynes in 1991, Saddington Baynes was a pioneer in embracing CGI for advertising print imagery. From 2004 the London-based studio used its digital retouching skills to help deliver a series of photorealistic firsts for the automotive advertising market, later widening the CGI net to other genres and developing further into animation.

> "We've widened our 3D net to produce a full spectrum of imagery, from creatures to landscapes, architecture to virtual people, fluids and fauna"

A Saddington Baynes hand-modelled each helicopter in Bell's new range from scratch, based on four craft designed for different purposes

Multiplatform imaging studio Saddington Baynes is based in London, but has a global client base. The studio is composed of almost 50 artists drawn from fine arts, film, design, photography, illustration and other industries. According to MD and co-owner Chris Christodoulou, the studio first chose to explore CGI as a new arm of the digital retouching business in 2004. This was in response to a move by advertising agencies to start using CAD data to cut photography costs. "We were initially asked to bring our retouching skills to help deliver the first photorealistic samples for a tour of the US agency market and we cracked a lot of the 3D methodology at that time," Christodoulou explains to us.

One of the first companies to use ArtVPS RenderDrives alongside HDR image photography, the studio soon created one of its signature images – the *Bentley Vault*. As part of a larger marketing piece to alert automotive marketers of the potential benefits of CGI, this was an entire image in CG at 10,000-pixel resolution, for a large-format luxury print mail out – and very tricky to do with the systems available.

In 2006 the studio produced Toyota Europe's first-ever CG imagery, for the Avensis. However no CAD was available for the project, so the car was scanned instead, which meant that the digital team also received a version for online assets. The project prompted Toyota to use CG cars from that point on.

"Since then we've widened our 3D net to produce a full spectrum of imagery, from creatures to landscapes, architecture to virtual people, fluids and fauna," says Christodoulou. "We didn't want to be [seen] as an automotive CGI studio"

©Client: Bell, Agency: T M Advertising Creative Production: Saddington Baynes

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This is the modern world

The advent of 64-bit technology has prompted the biggest shift in working practise for Saddington Baynes in recent times, enabling the artists to work on huge data sets more easily, work with 32-bit imagery and deliver work consistently. Christodoulou comments: "We've streamlined our pipeline from the early days and have optimised our hardware render farm and internal systems to give our artists the freedom to do what they do best – create."

There is a cinematic, graded and very striking look to many of the projects. Chris Christodoulou explains that such colour grading is a crucial skill for Saddington Baynes. "It's the heritage of our photographic background, working to develop iconic styles for some of the greatest advertising photographers of the past 20 years: from Olaf Veltman and the classic Stella Artois ads to Graham Westmoreland, Darran Rees, Paul Murphy and Nadav Kander. The drama, art, beauty and [emotion] of these images are qualities we've absorbed into our culture here at Saddington Baynes. We constantly explore ways to keep our look modern and relevant, but the values behind our aesthetics are non-negotiable. The challenge of recent years has been to apply these aesthetics to CG imagery, for example in our campaign for Shelter."

This was the award-winning House of Cards campaign, raising awareness of the risk of homelessness within all walks of life, for the charity Shelter's agency Leo Burnett, with photography by Blinkk Full Creative.

"We created rules that we would only build it in a way that we could actually build a house of cards," explains head of CGI Kevin Shepherd. "All of the physical things you could do with a real card we applied to the CG versions. This helped both with the realism and story. As such, we studied how actual playing cards behaved when stacked together. Cards were also scanned in to capture the paper textures and creases to add authenticity. Our photographic skills then enabled us to perfectly place all of the camera angles and lighting to seamlessly integrate the CGI models into Blinkk's shots of the houses. One of the images is the house of cards collapsing. For this we ran rigid body simulations to give additional realism to the house as it collapsed."

The main challenges with compositing was masking out the trees. "They are notoriously difficult to do for CG artists because they are fine and there are no ways to pull any keys," reveals Shepherd. "Each leaf and branch had to be crafted individually and as it's such a high-resolution it had to be done really well."

> "We've streamlined our pipeline from the early days and have optimised our hardware... to give our artists the freedom to do what they do best – create"

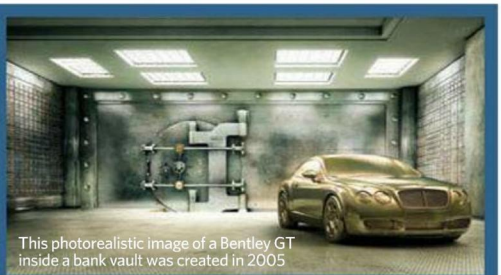
Storm in a bottle: print work for the number one Finnish vodka

Rendering on through the years

With Saddington Baynes about to celebrate its 21st anniversary, we thought it would be good to contrast the first CG project the studio worked on with modern work. So come with us back to 2005, when the studio created a 100 per cent CGI, photorealistic image of a Bentley GT sitting inside a bank vault.

"Bentley Motors kindly let us use their CAD for the new GT and the final image was a visual metaphor for CAD data – that is, a solid gold asset locked away," says MD and co-owner Chris Christodoulou. "A second image was a photorealistic GT in a salt flat landscape at exactly the same angle. It helped us win some key accounts."

Contrast this with creative work for agency Red Peak in 2011 where eight artists produced 106 images at 12,000-pixel resolution using a combination of Maya, V-Ray and Photoshop. "Not only did we build the expansive structures for this project and light and render them, we also designed them using current architectural design principles and language," explains Christodoulou. "With the level of detail in the architectural models, V-Ray was pushed very hard to render out 50 images at 12,000 pixels in 30 days, but just made it!"



This photorealistic image of a Bentley GT inside a bank vault was created in 2005

©Saddington Baynes

Kevin Shepherd brought his architectural skills to this project, which meant Saddington Baynes was able to create expansive, realistic visuals

©Agency: Red Peak Creative Production: Saddington Baynes

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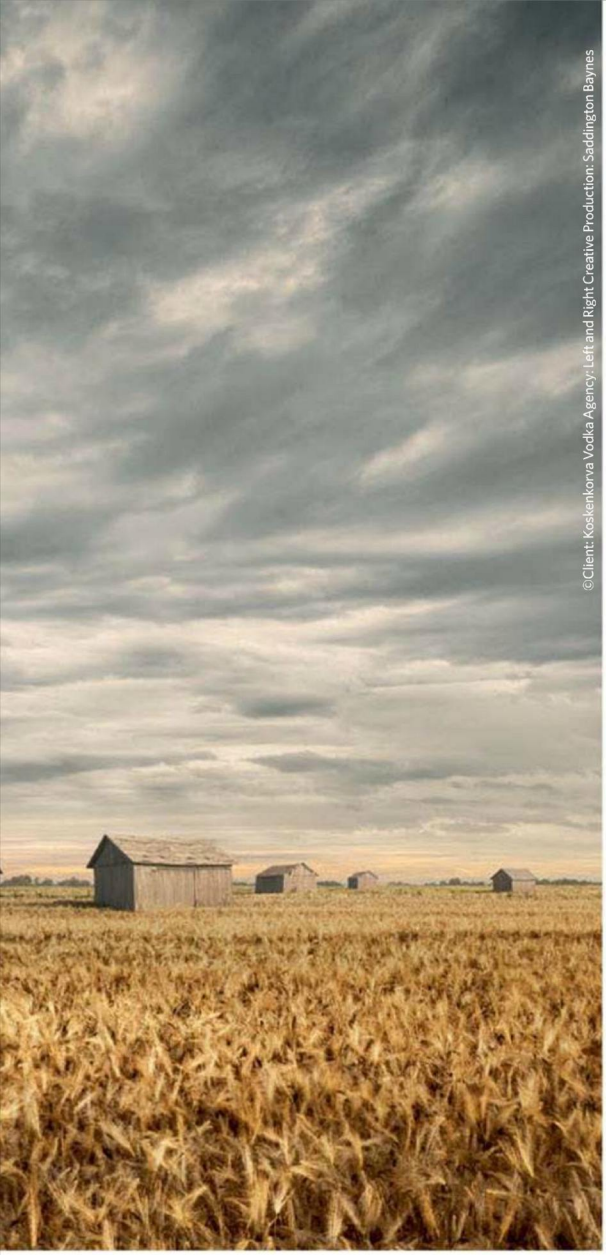
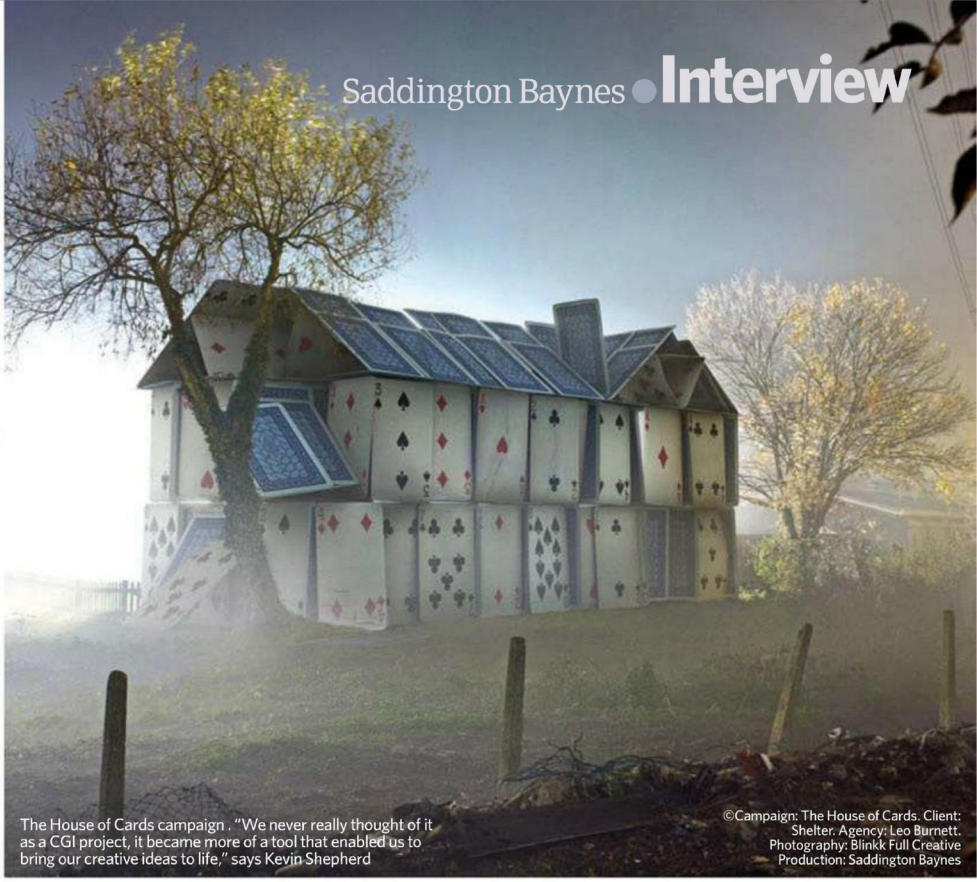


©Client: Koskenkorva Vodka Agency: Left and Right Creative Production: Saddington Baynes



The House of Cards campaign . "We never really thought of it as a CGI project, it became more of a tool that enabled us to bring our creative ideas to life," says Kevin Shepherd

©Campaign: The House of Cards. Client: Shelter. Agency: Leo Burnett. Photography: Blinkk Full Creative Production: Saddington Baynes

Creating new animated encounters

It appears to have been a natural progression for Saddington Baynes to develop more into animation. "Producing campaigns for agencies and brand clients in 3D enables huge flexibility and versatility to create multiple assets across different media platforms more easily," explains Chris Christodoulou. "We regularly produce content that will appear online, in print, on mobile and on TV, all from the same 3D assets. Even bigger value is that the content will be visually consistent across those platforms, so the brand message is tighter."

One such TV and print combo was produced for Best Friends Animal Society, an American animal health organisation running a campaign to promote vaccinations for pets once they are four months old. "Staying true to the organisation, our brief was to create single animations of a cat and dog in the formation of the number four," explains CG Artist Joe Lawrenson. "However, the animations had to reflect the movements... attributed to cats and dogs."

Lawrenson explains that the actual geometry and model of the four is really straightforward, requiring a very basic rig of just a few bones. "The four was given UVs to [enable] shading and texturing of the fur and we also took texture references from photographic images," he elaborates further. "These photographic references influenced the colours and patterning of each of the numbers, again adding an extra level of realism to the overall look and feel of the stills and animations. We created a selection for the client to look through and one animation for each animal was chosen, any comments were taken on board and [details were] amended."

> "Producing campaigns for agencies and brand clients in 3D enables huge flexibility and versatility to create multiple assets"

Maya was utilised to create and animate both the cat and dog characters, using the Shave and a Haircut plug-in to sculpt and brush the hair. "A dynamic simulation was run after the hair was styled that we provided to the clients to give a final sign-off," Lawrenson explains. "We rendered the project in V-Ray and it took only a few minutes per frame. We also used GI [Global Illumination] to make the image lighter and give the hair an extra level of realism to its texture. Because of the high render times when using large samples for the GI, only low samples were used and any flickering was reduced in post. V-Ray seems to be able to handle complex fur very well without having to cut too many corners to achieve the desired look."

Using multi-angle photographic and HD video, Simon Burch captured the perfect moments of action for the 3D modellers to use

> "More video and animation content is being created specifically for online now"

A This completely CG Squirrel was created as proof of a concept to attract clients

B *Barbican Tunnel*, an internal project by Saddington Baynes

C Yahoo wanted a beautiful golden globe for a campaign in the US. The perfect effect was brought to life with the application of bespoke still-life lighting and retouching

Delving into digital dreams

The move from the printed page has not been effortless. "It's certainly more challenging in the broadcast arena," admits Chris Christodoulou. "This is a very mature, well-serviced market with lots of companies for agencies to choose from already and there is still a tendency, I believe, to separate broadcast from digital. However, more video and animation content is being created specifically for online now, and this is where we can bring our value."

One such digital project involved creating a 360-degree animation of the 2012 Honda Civic, in conjunction with Wieden+Kennedy, London. Sean Dunderdale, CG Artist on the project, explains that the studio was commissioned to produce four cut-away animations for Honda's YouTube channel, displaying the technical innovations within the new car model.

For most of its automotive projects the CAD data is supplied to Saddington Baynes by the car manufacturer, in this case Honda. However, while the team didn't have to create any of the assets themselves, they did have to retopologise the mesh for the interiors, match them to reference photography of the car, plus carry out standard data clean-up tasks.

"For this project we used a standard studio lighting setup for the car using a soft-box lighting style," Dunderdale explains. "The clients preferred the car to be in a neutral environment, staying true to the Honda brand, keeping the lighting and mood of the animations clean, simple and modern."

Dunderdale says the team outputs 32-bit multi-channel EXR files in bespoke multi-layered comps. "We composited in NUKE using a linear workflow, colour corrected tones and contrasts in order to give it that extra finesse and improve the aesthetics of the inner workings of the car," he explains. "It was also important that the animations match as closely as possible with the hi-res brochure imagery for campaign continuity.

"The four animations were created as a product reveal," he continues. "So we had to keyframe layers of the car to disappear in an order that looked good and flowed naturally – namely the outer-car body first, and then the interior shots. This method of animation is usually quite straightforward. However, the order [that] the groups of car parts disappeared needed to be carefully timed and ordered."

The biggest challenge then was creating an animated fade for the disappearing parts. "In order to avoid a stop-frame animation look we had to create an offset frame, which would be at 50 per cent visibility, and then when it was played back at real-time it would create a fade look as opposed to an instant jumpy/pop feel. This stopped it from looking and feeling rigid."

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Moving to a multiplatform future

Saddington Baynes always has a series of R&D projects on the go and it's company policy to make sure that all the artists get time to be involved. "Such projects have [enabled] us to master the most ambitious image creation challenges: from CG animals to fluids to virtual humans to developing new innovative mobile content display technologies," says Chris Christodoulou. "We're also very open to our guys putting ideas forward and expanding their skills. The fruits of these explorations find their way into all sorts of client projects; but they also give us finished pieces in their own right, such as *Hamlet the Pig*, the *SB Squirrel*, *Manta Ray* and our SBook app."

The latter is a mobile app, created to bridge the gap between the print and digital worlds and showcase possibilities for multiplatform content. It's based on SBridge, a bespoke framework for integrating and displaying digital layers of content connected to a printed companion.

"We have printed portfolios alongside the SBook App and we use it as part of our presentations to showcase how Saddington Baynes can take emotive imagery to new levels of engagement," says head of interactive, Duncan Hart. "We are currently working with a number of existing and new clients who are utilising the SBridge framework to enhance their various cross-platform campaigns.

"One of the things we look for when finding new people is that beautiful fusion of artistic sensibilities and technical [acumen], the mixture of art and science," says Christodoulou. "The moves into mobile and digital projects are natural because we like to influence the process by which our imagery gets shown to the outside world. In most cases, particularly for print, the final image you've just worked so hard over goes into InDesign somewhere around the world and is covered with type and disclaimers and you have no control over that. When we're working on configurators or apps, we can mange the whole process more efficiently and deliver a better outcome that doesn't compromise the visuals.

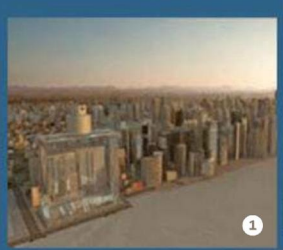
"We've evolved from our still-image tradition into animation, digital and interactive. [We] are now involved in hugely exciting, far-reaching and genuinely innovative cross-platform campaigns for several global brands," he adds. "It makes sense, given the modern advertising landscape, to take a holistic view. [We] have a special, unrivalled perspective and set of expertise to approach this. It's an incredibly exciting time."

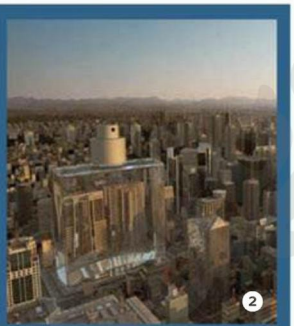
In 2006 Saddington Baynes was commissioned to produce Toyota Europe's first-ever CG imagery, for the Avensis

Saddington Baynes created *Hamlet*, a photorealistic piglet as a proof of a concept for print advertising

Building new worlds

To launch a new aftershave, Saddington Baynes created a glass bottle building within an entirely CGI cityscape. Launch is the operative word here as the image was created for press and billboard ads that featured a male model vaulting from the rooftop of the bottle skyscraper.





1 The first layers of the scene are rendered and the CG city, created in Maya, is blocked in. Saddington Baynes used procedural techniques to lay out the city, as well as generate degrees of variation and detail to enhance the realism of the shot.

2 A CGI city was chosen to offer the best approach and create as much flexibility as possible in terms of the layout, design, camera angle and lighting. In order to get the desired level of detail, the artists decided to push everything to a massive 12,000-pixel resolution.

3 The studio's refinement process is very much about developing the colour grade on an image, while actively managing the arrangement of highlights and details to balance the image. Compositing was kept as layered and separate as possible.

©Agency: Integer Creative Production: Saddington Baynes

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ymetrical Texture Replicators
03 Generator controls The nice thing about using the Surface Particle Generator is that it enables you to have more control over the placement and density of your particles. Most importantly it has a Seed number you can change to instantly create happy accidents with your texture bombing
04 Take your suit to rendering
Artist Showcase
Scott Robertson
In addition to founding and running Design Studio Press, Scott crafted the Art Center College of Design's Entertainment Design curriculum and is the former chair of the department. He has authoured and co-authored nine books on concept design/art, and nine educational DVDs featuring his professional drawing and rendering techniques.
Bot Charge Photoshop CS5 (2011)
This is a quick colour sketch of a bot charging through the sand. I took a picture of a dinosaur skeleton and then painted directly on top of my photograph
Red Sled modo 501, Photoshop CS5 (2011)
The background and vehicle were created in modo, then I went out and took a picture of some girders to lens blur and use for the foreground element
Powerslide modo 501, Photoshop CS5 (2010)
I made this piece for my book DRIVE. This was the first time I made extensive use of the stencil effect with a material. The tunnel is made from two cylindrical meshes with a Stencil mat
74 3DArtist

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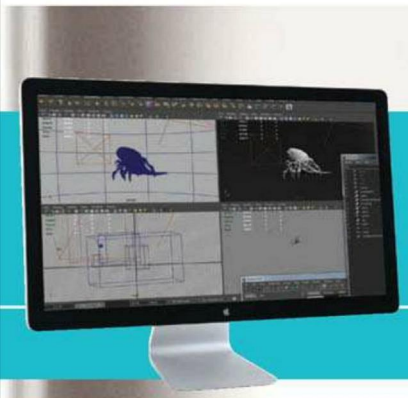

CHOOSE THE

It can take years upon years to really learn a 3D package inside

Games development happens in 3ds Max, film and TV animation requires Maya. That's what people tend to think, but what about other 3D industries and is it really true anyway? As a quick generalisation, this thinking does still hold water, but for students the decision about which software packages to learn is a lot more complex. As well as thinking about the primary tools you'll use, you've got to think about all the supporting aspects of the process, like rendering and asset management, and learning that software too. You've got to think about where you might want to work geographically, as well as by industry, because there are biases regarding that too. Of course, if you are on a 3D university degree then your lecturers should be taking these things into account and teaching you the things you'll need to know. But if they're not, or you're not in education, then that's where **3D Artist** can help point you in the right direction.

Even the best student, graduating from the best course, with the best marks does not yet have the complete skillset they'll need as a 3D artist. Federico Scarbini, a modeller/texture artist in MPC's (**www.moving-picture.com**) Assets Department, taught himself 3ds Max in the evenings. Eventually he got his first job in an arch-vis studio: "We used Maya, 3ds Max, Photoshop, mental ray and V-Ray to create photorealistic renderings. I learned a lot more about the software during those years because being in a work environment and having to deal with production and deadlines really pushes you to discover new techniques." So, choose your software with care, but remember that you don't graduate as the finished article and that the best artists never stop learning.

> "The 3D student can't predict the future... What they can do is be prepared"

This illustration was created with a ZBrush-modo-Maxwell pipeline, using modo as a hub between the two more specialised applications to get the best possible result

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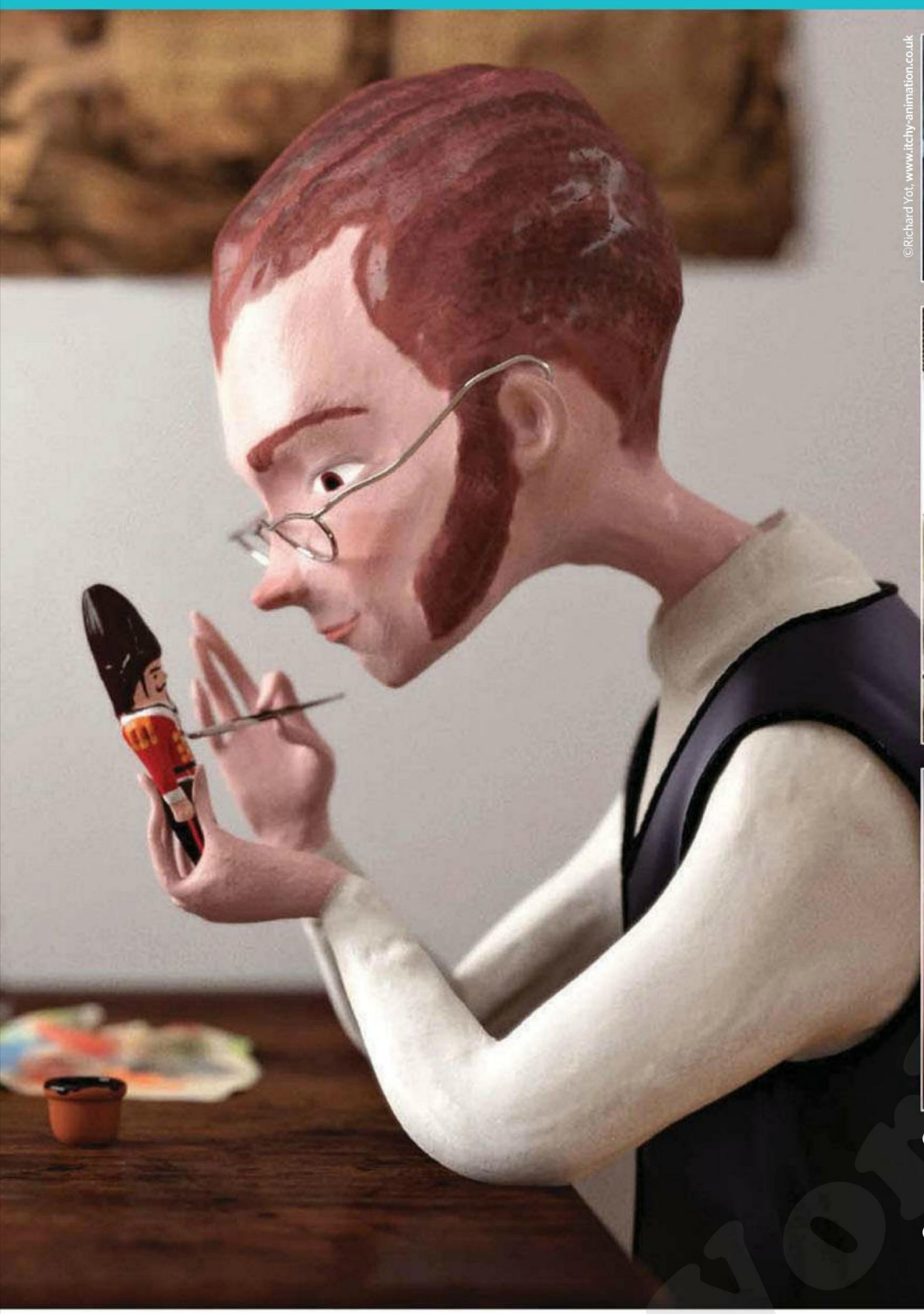
Words by **Poz Watson**

BEST SOFTWARE

out. So don't waste time or money and make sure you're in the right app from the off



©Richard Yot, www.itchy-animation.co.uk

©The Mill

©Pawel Podwojewski

©Alessandro Baldasseroni

©Taylor James

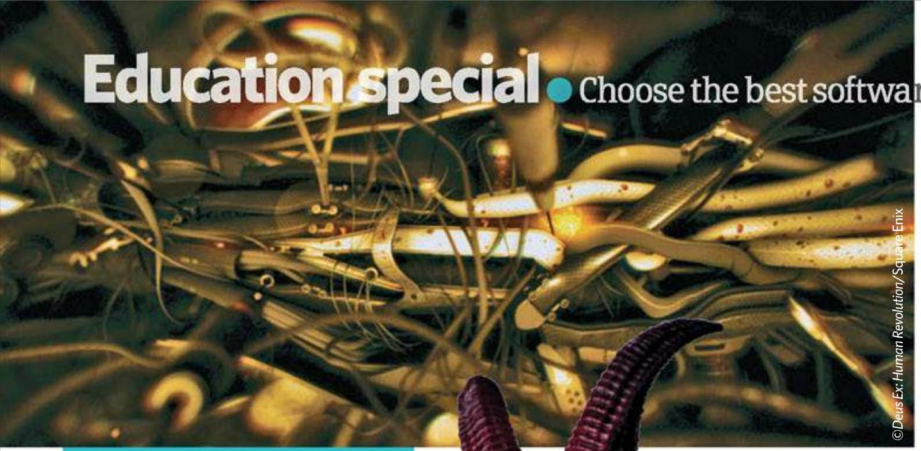
A With lots of assets, The Mill used 2D Equaliser for the tracking and NUKE to tidy up the projections. *Three Little Pigs* was then composited in Flame

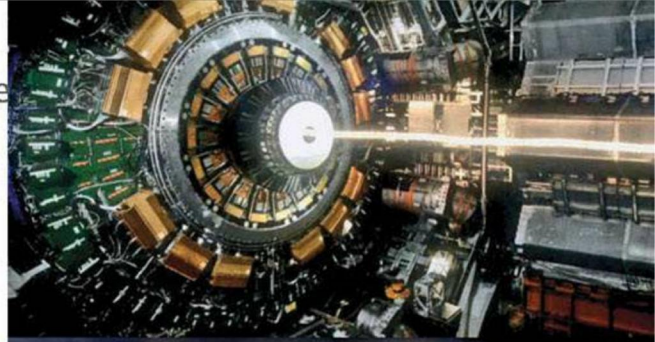
B The award-winning *Maison du Batiment D'Aquitaine* was designed by Nadau Lavergne with arch vis by Pawel Podwojewski

C This is a piece of Alessandro Baldasseroni's personal work, created using 3ds Max, Photoshop and ZBrush, inspired by iconic cover illustrations of the Sixties and Seventies

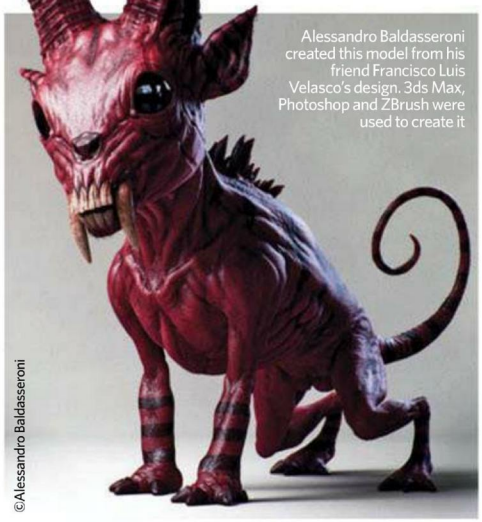
D CG and post was done by Taylor James for agency MWorks and Huawei

www.3dmags.net





The Mill's 3D artists used Softimage's ICE to build the Range Rover in this *Accelerator* advert



Alessandro Baldasseroni created this model from his friend Francisco Luis Velasco's design. 3ds Max, Photoshop and ZBrush were used to create it

GET INTO GAMES

Alessandro Baldasseroni is one of the lead character modellers at Blur Studio (www.blur.com). The Venice Beach studio where he is based handles commercials and has a long history in game cinematics.

Baldasseroni, whose recent work includes cinematics for *Mass Effect 2* and *Star Wars: The Old Republic*, says: "Our base 3D application for character modelling is 3ds Max, followed by ZBrush and Photoshop. 3ds Max is the main application for poly modelling and all the final renders are done in 3ds Max/V-Ray." Blur also uses Softimage as "the main 3D application for rigging and animation, Eyeon Fusion is our main choice for compositing and RealFlow and FumeFX are widely used by our effect artists," he adds.

Despite the prevalence of 3ds Max in the gaming world, Vancouver-based studio Goldtooth Creative has its CG base in Maya, ZBrush and Mudbox. Its associate creative director Ian Fenton, and CG supervisor Devin Stoutley, explain that the company has covered a myriad of projects, including "fully rendered CG FMVs for games, full CG trailers, NIS animation projects, live action VFX for film and TV." Fenton and Stoutley add that "a large portion of our clients are game development companies who primarily use 3ds Max. So we are always on the lookout for artists who are comfortable in both environments, but we do shift everything into our Maya workflow for the majority of the project." Goldtooth Creative also uses MotionBuilder as its previs program because it deals with a large volume of mocap data, so that's another program that appeals to them. Of course a 3D company doesn't run purely on 3D software. Goldtooth Creative uses "Shotgun for all our internal asset and project management and JIRA as our internal software and tools development tracker. Most graduates won't have real production experience with the applications but

E Goldtooth Creative created a commercial for a fictional company as part of a trailer campaign for *Deus Ex: Human Revolution*

F Maya was used by The Mill for this *Three Little Pigs* ad for *The Guardian*

G Using its pipeline of programs, Goldtooth Creative did the FMV work for *Prototype 2*

H Federico Scarbini started this personal alien as a doodle to explore new sculpting techniques. He used a host of 3D software

SOFTWARE FOR GAMES

While 3ds Max is dominant, there are certainly other options for the aspiring games creator

3ds Max

Website www.autodesk.com
Most used for Animation
Price £3,050
Educational discount Free
Educational version The educational version is free to download from **www.autodesk.com/edcommunity** with a three-year licence. It's fully functional but includes a print banner on work so that it can't be used commercially.

Maya

Website www.autodesk.com
Most used for Animation
Price £3,050
Educational discount Free
Educational version The educational version is free to download from **www.autodesk.com/edcommunity** with a three-year licence. Again this is the complete package, but prevents users producing work commercially.

Unity Pro

Website http://unity3d.com
Most used for Animation
Price £950
Educational discount from £60
Educational version The student version has a watermark so it can't be used commercially, but students can buy Student Commercial Pro for £415 (**www.studica.com**) if they want to. Alternatively, anyone can get their hands on the free version of Unity, but it doesn't have features like occlusion culling or real-time shadows.

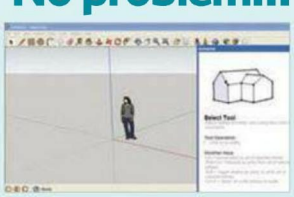
Mudbox

Website www.autodesk.com
Most used for Sculpting and painting
Price £725
Educational discount Free
Educational version The educational version is free to download from **www.autodesk.com/edcommunity** with a three-year license. As with the rest of Autodesk's educational offers, this restricts the user from producing commercial work.

No student ID? No problem...

If you're serious about a career in 3D but you aren't on a degree course, and don't therefore have the student ID required to get a student discount, you have little choice but to cough up the cash and buy your program of choice. To sweeten the pill a little, don't forget that most programs have 30-day free trials so you can choose the one that best suits you and even then you can hunt around online for the best deal.

If you aren't quite at the stage of needing to learn a particular app for your career, there is another appealing option: choose a free program to stretch your 3D muscles in. Blender (**www.blender.org**) is probably the obvious choice, as it enables you to model, rig, animate and render. There's also Google's SketchUp (**http://sketchup.google.com**), which has the benefit of Google 3D Warehouse, so you



can download other people's models to learn from and play around with. Other free 3D options include polygonal modelling specialist K-3D (**www.k-3d.org**) and easy-to-grasp Anim8or (**www.anim8or.com**). While these programs are a long way away from pro apps like 3ds Max or Maya, remember that Pixar uses its own proprietary software anyway, and when recruiting, they want animators not software specialists.

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knowing and referring to the importance of tracking and procedural workflow tools in interviews is an important step in becoming a working CG artist," explain Fenton and Stoutley.

Baldasseroni points out that while Blur Studio has always been centred around 3ds Max, other things have shifted: "The evolution of softwares into our pipeline is all about a combination of specific requirements dictated by the standard of the industry and our specific needs, which are not immutable. When I started working for Blur five years ago, for example, ZBrush was useful but not so strictly necessary, now it's totally part of our pipeline."

YOUR FILMIC EDUCATION

World-famous VFX house The Mill was "a [Softimage] XSI studio, which adopted Maya and is now a 50/50 split in London," explains Rob Holmes, joint deputy-head of 3D. "LA is entirely Maya and New York is a bit of both also. Software is just a tool and we will [always] use the best tool for the job," he adds. Holmes explains that the choice of software on a particular project is usually obvious "once you know the strengths and weaknesses of the software. XSI has been given a second wind with [Softimage's] ICE and is now a go-to tool for serious particle work, where Maya was the only choice for a while." Maya and Softimage are supported by "Houdini, ZBrush, Mudbox, MARI and RealFlow. For 2D, NUKE is our tool of choice. Tracking is handled almost exclusively in 3DEqualizer with a few copies of PFTrack used on occasion."

> "Software is just a tool and we will always use the best tool for the job"

Choosing between software can often come down to something less flashy than features. Federico Scarbini – who is currently working on *Skyfall*, and also worked on *Dark Shadows* for MPC – says that "one of the most important things in a software is its stability. You want to spend your time being productive instead of finding workarounds to solve bugs." Just as artists must be flexible, to too must the programs they use. Scarbini praises "the option to share scene settings between software, for example having the same cameras between Maya and Mudbox and MARI through the FBX format is awesome." Holmes adds: "Artist availability will also dictate software choice. It's not so easy to [gather together] XSI and Houdini artists at short notice, whereas Maya artists are more common."

Over at MPC, Scarbini uses Maya for poly-modelling, ZBrush for sculpting and Maya and UV Layout for the UVing. "For the texturing I use a combination of Photoshop, MARI and

SOFTWARE FOR FILM

If film and television are your thing, then these are the programs to read up on

ZBrush

Website www.pixologic.com
Most used for Sculpting, painting
Price £448
Educational discount £294
Educational version This version has full functionality, and can be bought via Pixologic's resellers (**www.pixologic.com/resellers**) but may not be used for commercial projects. There is also an academic licence available for universities.

Softimage

Website www.autodesk.com
Most used for Animation, visual effects
Price £2,900
Educational discount Free
Educational version The educational version is free to download from **www.autodesk.com/edcommunity** with a three-year licence. It offers full functionality but also includes a print banner on work so that it cannot be used commercially.

CINEMA 4D Studio

Website www.maxon.net
Most used for Animation
Price £2,800
Educational discount £135
Educational version The student version offers full functionality, but the licence is limited to 18 months.

modo

Website www.luxology.com
Most used for Modelling
Price £755
Educational discount £157 for the permanent license, £95 for the annual licence
Educational version Both educational licences are identical to the commercial version of modo, and are available for all students and teachers at all educational institutions.

LightWave 11

Website www.newtek.com
Most used for Visual effects
Price £1,061
Educational discount £149
Educational version See **www.newtek.com** for more on the student version.

SOFTWARE FOR ARCHITECTURAL VISUALISATION

Make your buildings the best they can be, by honing your software skills in these packages

Blender
Website www.blender.org
Most used for Modelling, animation
Price Free
Educational discount Free
Educational version Blender is open source software, so anyone can download it for free from the website.

V-Ray for 3ds Max
Website www.chaosgroup.com
Most used for Rendering
Price £840
Educational discount £67
Educational version Again, the student version is fully-featured, and there are no restrictions. V-Ray is also available for Maya, Softimage, Rhino and SketchUp, but pricing will differ for each.

Phoenix FD for 3ds Max/ for Maya
Website www.chaosgroup.com
Most used for Visual effects
Price £600
Educational discount None

NUKE; each software has its pros and cons but generally I use Photoshop for painting directly onto the UVs, MARI instead is very powerful when dealing with photo projections and when you need to paint across multiple UV shells at the same time. I find NUKE to be very handy when you are dealing with very big assets with a large number of UV shells."

It's one thing to learn a software package in a learning scenario, and another to take that into the real world. "Students tend to have a solid grasp of the process, but not necessarily to the quality levels expected," says Holmes. "That's why the junior route of tracking and roto are so important. These tasks require attention to detail and are subject to scrutiny from senior artists, promoting a sense of responsibility and ownership that will serve them well as they progress in their careers." Holmes further adds he would like to see "a greater use of Python both in and out of software."

TRAINING FOR ARCHITECTURAL VISUALISATION

All 3D artists have to collaborate, whether it's with colleagues in other specialities, or clients over a brief. The relationship between the architect or and the arch-vis artist is particularly interesting. Mark Lee, senior designer at Uniform (**www.uniform.net**) says, "I think our workflow at Uniform is typical of most arch-vis studios. We use 3ds Max for all our 3D work, but due to the recent shift to being given 3D models by architects, we are finding we import from Rhino and SketchUp a lot more." Here, the history of using 3ds Max is strong. Lee continues that they have always used it "due to its strong ties with AutoCAD, with most CAD software being able to exchange in an AutoCAD file format which 3ds Max can import."

Pawel Podwojewski, CEO and founder of MOTYW (**www.motyw.org**) agrees: "Our software setup is constantly evolving but the core so far is always the same – 3ds Max for modelling and V-Ray for rendering." He adds that DraftSight is "not very popular but very handy... it is a great free alternative for CAD drawings."

While 3ds Max requires years of effort to master, the arch-vis experts are quick to stress that it's the talent that really matters. "It would be of benefit for all graduates coming into arch vis to have a stronger understanding of photography and image composition," says Lee. "Our job relies heavily on artistry and creativity, and it's not always about the software you use." Podwojewski says he "spent lot of time during college on painting with oil and ink. Nowadays I still find this very useful, especially while planning the scenes. Of course

I Uniform created this image to show the view from the rooftop garden of the proposed Manhattan Loft Gardens

J Pawel Podwojewski uses 3ds Max: "It takes some time to get to know the features that sometimes are really deep inside," he says

K This rat was created in 3ds Max, V-Ray and Photoshop as an in-house project to master a furry character

L Taylor James created a series of flags for LACOSTE and agency Grey Paris, including the UK and the US

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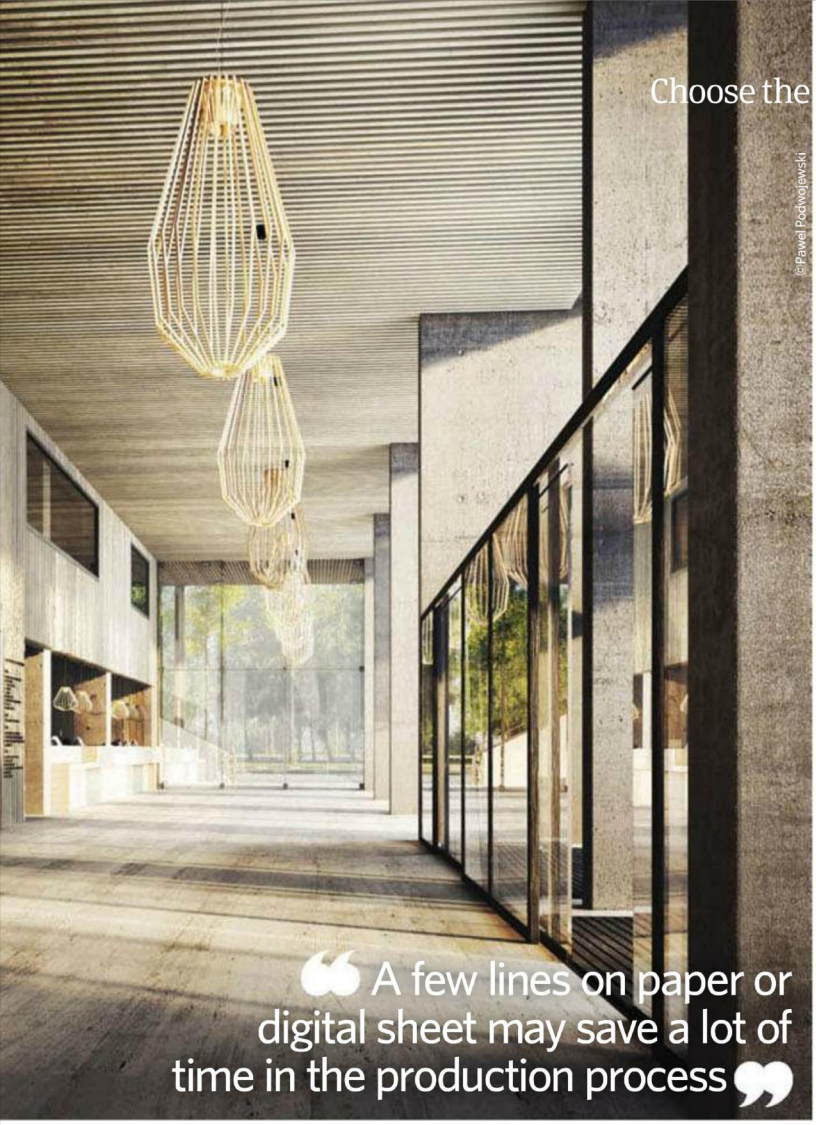


> A few lines on paper or digital sheet may save a lot of time in the production process

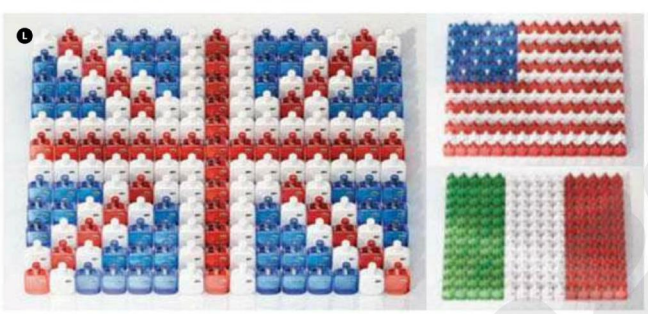
No teacher? No problem...

If you're planning to teach yourself 3D, or you just want to top up the education you're getting in your degree, then you're in luck. Not only is there **3D Artist** to open your eyes to the wonders of the software, but there's a world of communities and content online too.

The first place to go depends on the program you're using. So if you're a fan of the Autodesk family, then **www.autodesk.com** should be your first stop. There's also **www.the-area.com**, a community with 350,000 artist members of all levels. If you're looking to learn more about ZBrush, then **www.pixologic.com/zclassroom/homeroom** and **www.pixologic.com/zclassroom/training** are the places to try. Luxology also has a good array of training for modo users, so check **www.luxology.com/learning_resources**, **Luxology.tv** and **www.luxology.com/store/training_videos**.

YouTube and Vimeo are other great stops for all the programs, and **www.tutorialized.com**, **www.free3dtutorials.com** and **www.tutorials3d.com** are a few other destinations to try.

Of course there are plenty of third-party tutors you can buy tutorials from, including **www.digitaltutors.com**, **www.design3.com** and **www.walkerboystudio.com**.



you can ask a concept artist to do it for you but even he/she has to receive brief information. A few lines on paper or digital sheet may save a lot of time in the production process."

For Lee, the other thing that students should work on is how fast and efficiently they can work. He explains that "many can produce decent work given an unlimited amount of time to complete it, but under a tight deadline, with a client requesting changes or image adjustments (which you might not necessarily agree with), their quality of work reduces considerably and mistakes are made." One of Uniform's new hires is recent graduate Andrew Wraithmell. If he could do his student time over again, it's not another 3D package he'd learn. Instead he'd spend more time in a 2D space: "Graduates should learn more Photoshop, as most aspiring artists (myself included) are taught very little at university. Ninety per cent of my current Photoshop [skills were] self-taught and the knowledge I picked up from work placement year was far more than I could have ever gained at university."

FINDING A CAREER IN COMMERCIAL 3D

More and more 3D is creeping into the worlds of illustration and motion graphics, and companies like Milky Tea (www.milkytea.com) have to pick the programs that will work for them. David Weaver, a senior artist at Milky Tea explains that it uses 3ds Max, V-Ray, Photoshop, Illustrator and After Effects, and has "recently started to use Maya in [the] workflow as collaborations with other studios have meant we have had to adapt our processes to their pipeline."

David Wortley, the lead technical R&D artist at Taylor James (**www.taylorjames.com**) explains that the team needs to have "a good all-round knowledge of the software we work with so I can problem solve, quickly test new software and develop workflows for new projects. I use 3ds Max, V-Ray, Photoshop, a little bit of ZBrush, Vue and Fusion. I spend a lot of my time writing tools in Maxscript in 3ds Max to enable us to do new things and improve our workflow."

If Weaver could make one recommendation to students, it would be for more of them to learn MARI (**www.thefoundry.co.uk**). He explains:

Cosmetics chain Areej was the client for this image, with liquid photography and retouching by Taylor James

©Taylor James

©Milky Tea

No models? No problem...

The first thing that comes to mind when you're thinking about resources to help you learn 3D is models. After all, if you can get your hands on a couple of decent models then you can practise animating, lighting, rendering them and so on. There certainly are sites where you can download great models including **http://thefree3dmodels.com**, **www.turbosquid.com**, **http://archive3d.net**, **http://sketchup.google.com/3dwarehouse** and **www.nasa.gov/multimedia/3d_resources**.

But what if it's the modelling you want to learn, and it's the other bits of the process that you need help with? Well, there are other resources you can download for free, including textures at **http://mayang.com/textures**, **www.cgtextures.com** and **www.textureking.com**, sound effects at **www.freesfx.co.uk** or music at **www.freesound.org**.

If you're a modo user, then Luxology also has a couple of things you might be interested in. The first is a collection of free models and the like, which can be found at **www.luxology.com/asset**. The second sadly isn't free, but is very usual. Through Luxology's store you can also buy various kits for modo, which provide all the bits – lighting for instance – to speed up the creation of your images and videos.

Ⓜ *Ralph* and *Mini Ralph* were created for LTSB in 3ds Max and V-Ray. Postwork was done in Photoshop

Ⓝ A smoothie illustration crafted in 3ds Max,V-Ray, KeyShot, Photoshop and Illustrator as an in-house project to test out KeyShot

©Milky Tea

Water Turbines – 3ds Max, V-Ray, Realflow and Photoshop (in-house project to test Realflow software)

©Milky Tea

SOFTWARE FOR ILLUSTRATION AND MOTION GRAPHICS

No matter what kind of 3D you want to produce, there's a piece of software that's perfect for it

MAXWELL RENDER

Maxwell Render

Website www.nextlimit.com
Most used for Rendering
Price £745
Educational discount £60 for a one-year licence, £123 for a perpetual licence
Educational version The company is just about to launch a new Learning Edition (see **www.maxwellrender.com**), which will not require a student ID to purchase, but cannot be used for commercial use. There are also some small technical restrictions.

REALFLOW

RealFlow

Website www.nextlimit.com
Most used for Visual effects
Price £2,610
Educational discount £170
Educational version The Learning Edition of this fluid simulator comes at a fraction of the price, but it is for personal use only. Its XML import/export locked and scenes created in it cannot be loaded into other versions.

"Traditionally, artists used to texture characters in 2D in Photoshop, then apply that to see how the texture wraps around the model. With MARI artists are able to paint directly onto the model and get real-time feedback. Major studios such as ILM and Weta have already integrated MARI into their pipelines and it's only a matter of time before small studios follow suit."

For Wortley, the crucial thing is for students to "learn is the fundamentals: composition, colour theory and drawing." He explains that: "If you have good core skills it will show up in your CGI however good you are at using the software. We find that the people who have these good core skills can learn the software quickly, but people who join us who know how to use the software but lack these skills take a lot longer to become good artists."

> "The real world of work is going to demand plenty that university just can't teach"

Ultimately, the 3D student can't predict the future, either in terms of their career or software development, but they can be prepared. They should know about every major program out there, they should know a little in at least half of them, and then specialise in one or two – those they think they're most likely to end up working in. Of course it also depends on how much of a specialist they want to be. In big companies you might be making hair for years on end, in a small studio you might tackle an entire project. The real world of work is going to demand plenty that university just can't teach. So pick your program, but be prepared to be flexible.

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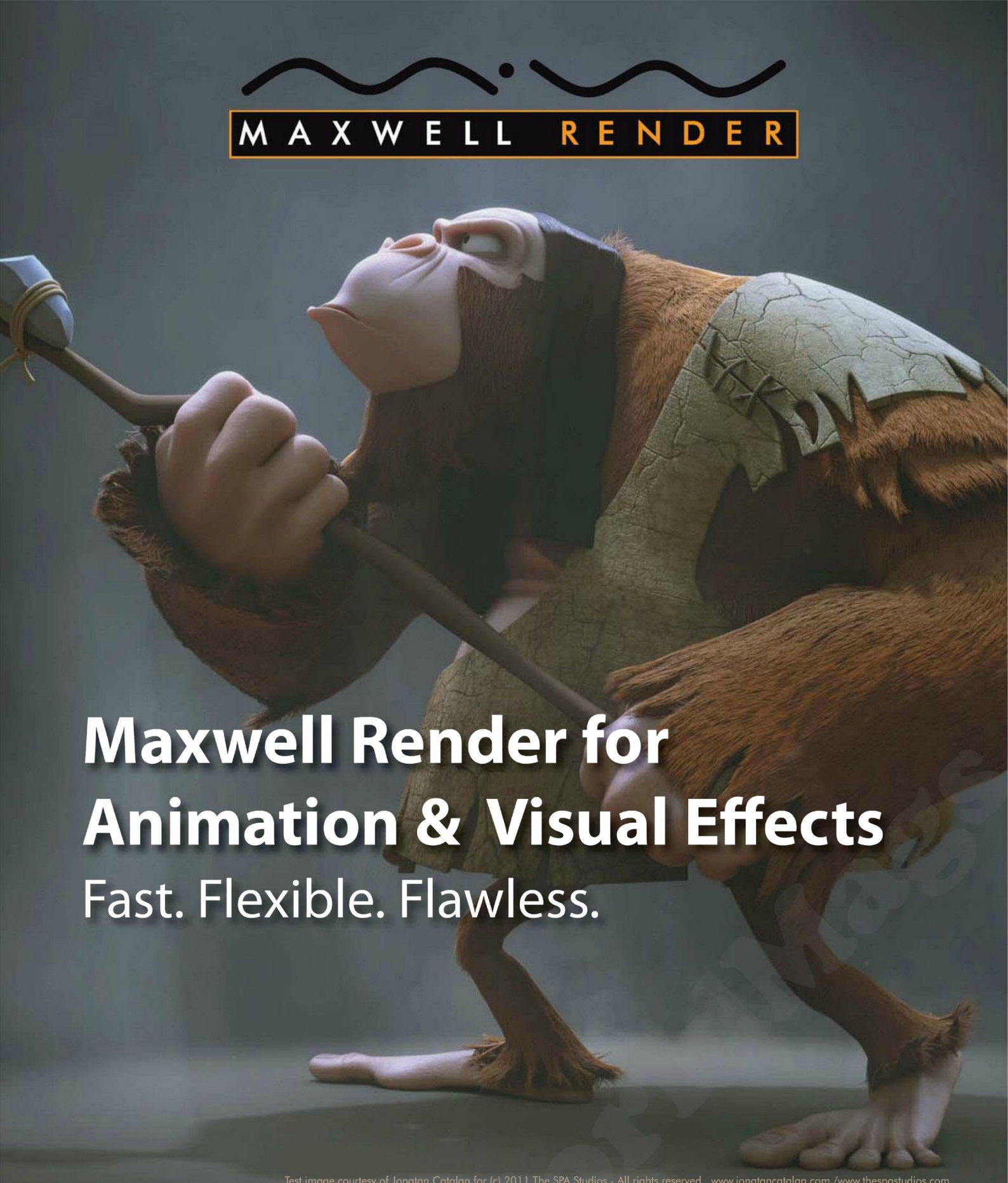
MAXWELL RENDER



Maxwell Render for Animation & Visual Effects

Fast. Flexible. Flawless.

Test image courtesy of Jonatan Catalan for (c) 2011 The SPA Studios - All rights reserved. www.jonatancatalan.com /www.thespastudios.com

NEXT LIMIT TECHNOLOGIES

www.maxwellrender.com

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Test image courtesy of Jonatan Catalan for (c) 2011 The SPA Studios - All rights reserved. www.jonatancatalan.com, www.thespastudios.com

GET TO THE TOP FASTER WITH

MAXWELL RENDER

Maxwell Render's new Learning Edition version is available for everyone at a great price – no student ID required!

Next Limit Technologies is serious about simulating reality and retains the philosophy to always remain loyal to the physics of light – which is what makes Maxwell Render so unique.

The Maxwell Render proposition is simple: high quality, efficient and simple to use – that's the Maxwell Render way. The real-world approach to rendering combined with Maxwell Render's unique workflow features gives you accuracy and reliable first-time results with minimum fuss and maximum speed.

Maxwell Render provides the render quality, speed and control that CG artists need, and is capable of producing stunningly realistic images, while being flexible enough to give you the exact look you want. With an ever-growing community of users in such fields as advertising, film, architectural visualisation, product design, photography and illustration, Maxwell Render continues to be the standard of quality in the CG industry. It's an ideal solution for anyone looking to get the highest quality in synthetic images.

MAXWELL RENDER LEARNING EDITION

The Learning Edition for Maxwell Render is a new innovation from the Next Limit team, aiming to make Maxwell Render available to everyone, with no student ID required.

In a nutshell, it's a non-commercial version of the Maxwell Render Suite at a fraction of the price. Simple! So whether you're a student, teacher, hobbyist or a CG professional working at home on a private project or demo reel, the Learning Edition is the perfect answer.

WHAT DOES IT DO?

The Maxwell Render Learning Edition contains the same powerful render engine along with all of the Suite package features, such as Multilight, real-time scene previews, the Maxwell Materials system, hair and fur rendering, as well as the same real-world camera model and physically correct sky and lighting.

WHO IS IT FOR?

The Learning Edition is for anyone who has ever wanted to learn and use Maxwell Render in a non-commercial environment, but doesn't necessarily have student or university ID. So now it's not only students, teachers and learning centres who can benefit. Anyone on a budget now has access to this powerful render engine.

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A Maxwell Render provides real-world proportions and realistic camera and light effects so that users can pursue the most photoreal projects

B Maxwell Render is designed to save massive amounts of time, through its speedy setup, compared with its rivals

C Creatives in the film industry particularly benefit from the added flexibility and control that Maxwell provides with its unique features

D "The Maxwell Materials parameters are by far the simplest I have ever used!" Architect Markus Otto reveals

“Anyone on a budget now has access to this powerful render engine!”
Markus Otto, Winzenrender, Koeln, Germany www.winzenrender.com
D

WHAT EDUCATION PACKAGES ARE AVAILABLE ON LICENCE?

PRICE There are two simple Learning Edition package options to choose from:

- $95 for a one-year licence
- $195 for a perpetual licence (the licence does not expire, so you can work indefinitely within the same major version)

RESTRICTIONS The Learning Edition has been adapted with a few minor restrictions to make it suitable for non-commercial use, the principal of these being the lack of networking features. Unlike Maxwell Render Suite, licences of the Learning Edition are node-locked (not floating licences)*

NOTE Classroom packs and educational licences for learning centres are available with full networking and floating licence mechanism

WHAT TRAINING IS AVAILABLE TO USERS?

The Maxwell Render Online Support Centre is packed with tutorials, video tutorials and detailed documentation about each and every feature. It's a one-stop shop for everything you'll ever need to know about Maxwell Render – from installation and getting started right through to optimisations, tips and tricks.

Besides this in-house support from Next Limit, there are also a host of third-party CG schools and institutions certified by Next Limit, which offer official Maxwell Render training, both in-situ and also online.

HOW IS THE PACKAGE USED IN THE INDUSTRY?

Architect Markus Otto of Winzenrender visualisation studios in Germany has been using Maxwell Render since its first release. "When Maxwell launched its beta versions and we saw the first renderings, it was absolutely clear for us that we needed that software," he says. Otto's knowledge of photography helped him achieve great results with Maxwell Render in a very short time. Today, many of his clients are from the product and industrial-design market. "Maxwell Render enabled us to provide our clients with an absolutely new level of photorealism," he adds.

Fuel VFX is among the growing number of VFX studios turning to Maxwell Render for its famous quality and innovative timesaving features. "For Leggoís, we used Maxwell Render, which is quite different to other rendering solutions. With the Multilight channels we can light mix post-render, allowing much more creative freedom than we're used to," says Carlo Monaghan, NUKE compositor at Fuel VFX.

PrimerFrame Animation School also uses Maxwell Render as its chosen renderer. "Maxwell Render is an incredibly efficient and powerful tool; not necessarily slower than others, in fact, in most situations quite the opposite!" says Jaime Maestro, PrimerFrame Animation School.

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BEHIND PROMETHEUS

THE KING of CREATURES

How Prometheus creature designer Carlos Huante turned a love of monsters into a thriving career

Words by **Joe Nazzaro**

CREATE THE COVER ON PAGE 48

We re-create an original Carlos Huante bust

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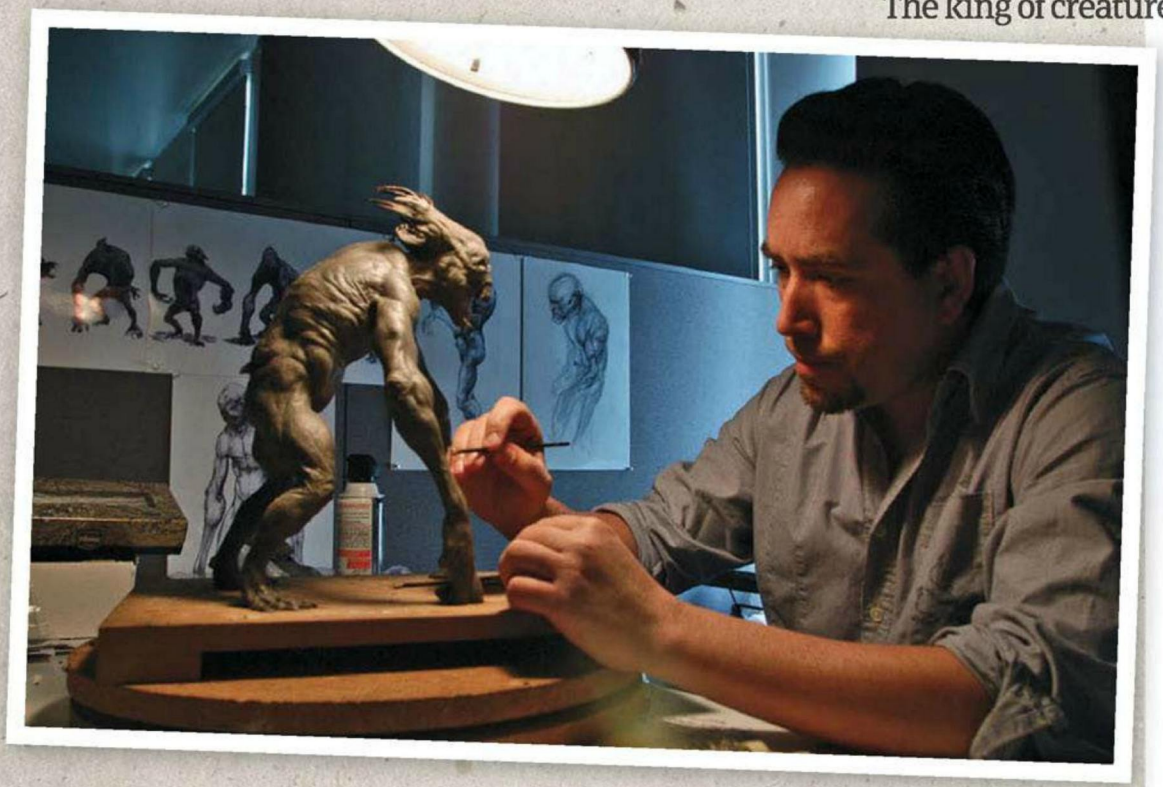


All images ©Carlos Huante

ARTIST PROFILE

Name Carlos Huante

Job title Character/creature designer/illustrator/sculptor

Location Northern California

Websites
www.carloshuanteart.com
www.galleryanatom.com

Expertise One of Hollywood's leading characters in film and animation for the past quarter century, Carlos Huante has been turning ideas into drawings for everybody from Ridley Scott to Steven Spielberg and Tim Burton. In addition to his feature work, Huante has also designed full-size prehistoric creatures for museums worldwide, as well as a theme park in Japan. He also helped develop concepts for the Treasure Island Hotel in Las Vegas. He currently divides his time between commercial projects and fine arts work

Tools Carlos is equally adept working in two or three dimensions, from simple pencil sketches, to digital and traditional colour paintings and traditional sculpture

Clients/employers Disney, DreamWorks, Warner Bros, Universal Pictures, Amblin Entertainment, Industrial Light & Magic (Lucas Digital)

Film credits *Men in Black I, II* and *III, Deep Rising, Bicentennial Man, Hellboy, Blade: Trinity, Fantastic Four, X-Men: The Last Stand, The Mummy I* and *II, Van Helsing, Signs, Dreamcatcher, Battleship, R.I.P.D, Prometheus*

TIMELINE

1986 Huante begins work in the animation industry as a layout artist

1987 Continuing to work within the animation industry, Huante becomes a character designer

1989 After getting married, he starts work for Dinamation, designing and building animatronic dinosaurs for museums

1990 He continues work in TV animation and starts a transition into live action

1996 A full transition to live action sees Huante working with several of Hollywood's leading and well-known make-up and creature FX shops

1999 Carlos begins work at Industrial Light & Magic (Lucas Digital)

2004 His first book is published: *Monstruo: The Art of Carlos Huante*

2006 An educational DVD is released: *The Techniques of Carlos Huante*

2011 Carlos fulfils a childhood dream working on Ridley Scott's *Prometheus*

2012 A self-published new book, titled *Blind Spot* gets sent to the printing press

A little over three decades ago, a wide-eyed 14-year old Carlos Huante saw *Alien* for the first time. It was, if you'll forgive the incredibly obvious pun, a life-altering experience. As Huante explains, "It affected me more directly than even *Star Wars* did. The seriousness of the mood, the design of the Alien and the Space Jockey left an indescribable first impression on me. The actors were perfect, the look and mood of the film, the ship design and style of how the film was shot and the usage of effects elements; it was all new and struck right in the centre for me."

Thirty-plus years later, when word started leaking out that director Ridley Scott was preparing to revisit the *Alien* universe with a prequel, Huante wasn't about to let the project go ahead without him. "I had been waiting for the opportunity to work with Ridley on a science-fiction project," he claims. "I knew that we would get along, especially after hearing from [effects wizard] Rob Bottin about what it was like to work with him on *Legend*, and because I had gone through my own Giger phase when I was very young before developing my own style, I felt very confident about being able to walk in there and keep things honest and true to what Giger had done with the original film. If *Prometheus* took place some time before the first movie, I wanted to be the guy to police it and keep it looking Giger-esque, so I was all over that!"

Getting established

Since seeing *Alien*, Huante has solidified himself as one of Hollywood's leading creature designers. "Carlos Huante is one of the few concept artists I've worked with who is truly at the forefront of creature designs," says veteran creature-suit creator Steve Wang. "His understanding of nature and anatomy, coupled with his unlimited imagination and technical prowess make him a dangerous man in the film business!"

XFX founder Steve Johnson, who worked with Huante on a number of projects including *Bicentennial Man*, agrees. "When Carlos works loosely his characters speak volumes beyond each confident stroke," he elaborates. "That's the sign of true genius: reaching out to the viewer and allowing them to participate in the work of art. But when Carlos works more tightly, look out! His more refined work serves as a blueprint for the legions of craftspeople that are tasked with bringing these characters into [3D]."

"What I liked about Carlos's work was the creativity, gesture and colour," adds fellow concept artist Constantine Sekeris, who met Huante while also working on *Bicentennial Man*. "What I learned in his work was how strong his form and silhouette was presented, as well as the strength in his linework."

It's been a long journey for the young boy who once honed his skills by copying his favourite comic book

Eye-catching design

Mike Elizalde, founder of Spectral Motion, tells how Huante's work on *Men in Black* and *Hellboy* inspired him

"Carlos and I first worked together at Cinovation Studios, when Rick Baker brought him to design some of the aliens for *Men in Black*. This was back in the day when Carlos was still using pen, pencil and markers, so he was all analogue – and it looked every bit as good as anything he's done digitally; in fact, to my eye, even better. His work had a wonderful handcrafted look to it and I was shocked and amazed by the illustrations I saw this guy doing day after day.

"As soon as we opened Spectral Motion to do *Hellboy*, I called Carlos right away. His designs included the Behemoth that is seen at the end of the film, which was sculpted by Jordu Schell and painted by Steve Wang. Having access to those talented people was one of the reasons we became a successful company, and Carlos [was there from the start].

"The thing I love about Carlos's work is that it's unique... That's what catches my eye. The way he designs and illustrates doesn't always adhere to what you would expect a functioning physiognomy to do, but it always looks like it would work, and it always looks amazing and distorted and correct in its own perverse way."

A The reason 90 per cent of Huante's drawings and illustrations are on white backgrounds is simple: it's all about showing off the design

B Carlos Huante has been designing characters for film, animation, games and more for over 20 years. He has worked with some of the most talented people in the industry today

C Some clients will only approve concepts in an environment, which Huante doesn't think is ideal, but he realises that he has to be able to give people what they need

D Huante sees his end-goal as showing the client exactly what the design is, so avoids hiding the fact with overlapping limbs in perspective

C

covers. As his focus grew, Huante began gravitating towards drawing his own figures of monsters, aliens and "any weird living thing. I also became interested in surrealism thanks to Giger and Salvador Dali," he recalls, "I started to pursue both drawing strange creatures and more compositional art."

It wasn't long before Huante landed a job working at the live-action/animation company Filmation. "It was there that I discovered I could actually get paid to design characters. After my first year of trying to work in layout, I started looking for jobs as a character designer, and never looked to do anything else."

While working as a designer on *The Real Ghostbusters* in the late Eighties, Huante began building a network of fellow designers who would recommend each other for jobs they couldn't do. Through this, his own reputation began to spread, with Huante landing jobs with a number of the leading make-up effects houses in LA, including Cinovation Studios (*Men in Black*), Rob Bottin Studio (*Deep Rising*), Kevin Yagher Productions (*Hellraiser: Bloodline*), and Spectral Motion (*Hellboy, Blade Trinity, X-Men: The Last Stand*).

Building a better monster

According to Huante, the ultimate goal of a successful creature design is to come up with something new, even though that design will often get rejected. Being brave is the key to getting noticed in the industry. "They always ask for something new, that's never been seen before," he explains. "So you give it to them and they reject it. That's just what you've got to love as part of the process.

"I always tell younger designers that your goal isn't to always have your work given the big gold star. Of course you try to meet the requirements of the client, but you also try to make a statement and push the limits of design, and you have to be willing to fight for it. In the end, the design is going to get watered down by all the filters (the committee), so why not start with somewhere interesting rather than boring?

"There was one film, which shall remain nameless, a big sci-fi/horror/adventure movie for which I was hired to design all the creatures. On the first pass, I gave this unnamed director a bunch of really cool designs for the main villain creature of his film, which were extreme, never [before] seen on film. I loved what I gave them, but it was all rejected, and this went on for months. All of the other characters were coming along... but this one character continued to linger.

"One night, I went home and did an illustration and came back in thinking they would reject it for sure, but everybody loved it – including the director. After much thought, I realised that I live in this world of crazy things that swim around in my head, but the people I work for

If it's good enough for Ridley Scott...

Creature designer Neville Page discusses Huante's unique designs for Prometheus

"I first met Carlos when I was working on the *Men in Black* ride for Universal and they said, 'This is a big project, so you're going to need some help; can we hook you up with Carlos Huante?' I was blown away by his talent. He has a great grasp of how things work and the believability in the mechanics of a creature, as well as the aesthetics.

"When I started working on *Prometheus*, they would show me what Carlos had done and either say, 'That's what we don't want!' or, 'That's exactly what we want; can you finish it?' There's a character in the trailer, which is this worm-type thing... that was all Carlos. When they showed me the design and asked what I thought, I said, 'That's so f**king cool, I think you're done!' I think Ridley felt the same way, so I began sculpting the creature with the help of Tully Summer, so that was probably the most collaborative creature in the film."

> "We would get ZBrush models sent up to us that were horrendous and did not work for the production, because they were made by illustrators who aren't very good at ZBrush"
>
> **Carlos Huante**

This 3D illustration by Joey Struve was a response to one of Huante's original concepts from his personal portfolio of monster designs

don't. At the beginning of a project, they are just opening the doors to their limited imaginations and are not ready for the full force of mine, or from anybody else who has my job, so they get scared. It takes them time, and... a lot of money, to come around."

As for the key considerations for designing a creature, Huante believes the process is intuitive and not easily described. "I guess I could say that as a designer you have to be able to pull information from the air," he finally concedes, "so you have to be well-schooled. I don't mean art school-schooled, I mean visually educated; from books to documentaries, even when you're home by yourself. You have to be up on pop culture trends, what's cool and what isn't."

The digital revolution

Having established himself as one of the industry's most in-demand freelance illustrators, Huante felt it was time for a change. When a job at Industrial Light & Magic (ILM) came up, he made the move to Northern California, where he soon began lending his talents to a string of films that included *The Mummy*, *Men in Black II*, *Signs*, *War of the Worlds* and *Eragon*. "At the time I came up here, science fiction had taken a dive thanks to films like *Armageddon* and *Godzilla*, so science fiction features had died for a couple of years, and it was actually perfect timing for me. ILM, which was part of [Lucasfilm], but not a direct part, had wanted to meet, so I [agreed] and they said: 'We're starting this digital feature division and we're looking for a lead to run the creature designs for *Frankenstein*, our digital feature,' so this was an opportunity to run a shop. But I would control the digital world and art direct them the way I would a sculpting shop. And my wife was on board with it, so we moved. It was originally just going to be a three-month deal, but I met the art department at ILM and they wanted me after that, so they hired me and my first job was *Men in Black II*."

With more than 25 years of experience as a creature designer, much of it now spent in the digital arena, Huante has some harsh advice to offer would-be creature designers that favour style over substance without learning to master the basics. "I'll be honest," he offers, "90 per cent of all the illustrators that call themselves character designers are not. During my time at ILM, we would get ZBrush models

Inspiring the masses

Huante's concepts flood the 3D artist communities as artists bring his inspirational designs into 3D

While we don't condone the use of other artists' concepts for your 3D projects – unless you get express permissions from the artist before you start – it's exciting to see just how many artists have drawn from Huante's incredible portfolio. Take Joey Struve, for example: "The thing about Carlos' work that got me inspired was his creature designs," he says. "The language is very natural and fun. I felt like his 2D works were meant to be sculpted, so I had to try one out."

3D artist Jan Jinda adds: "Carlos is a very inspiring and important artist for me. I found his portfolio when I was starting to learn 3D and he became one of the reasons why I'm trying to focus my 3D skills on characters. I've already made one character based on his art and I'm pretty sure that it was not last one." Jinda learned an important lesson about using concepts by others when he re-created one of Huante's *Men in Black* creature designs in 3D. While it's an incredible work that shows serious attention to detail and painstaking efforts, we're simply unable to publish the image due to the concept being owned by Huante's client – and not even *he* can grant permissions for artists to use those for their 3D projects. So if you want to use someone's concept, do your homework before putting in the time – if you create something awesome, you'll want to show it off!

E Huante warns about hiding bad design with elaborate backgrounds: you should be able to take a character out of a beautiful illustration and put it on a white background, and it should still work

F Always trying his best to teach those that he works with, Huante sees it not only as a job, but also as a self-imposed obligation to help educate clients

Designing Prometheus

Prometheus isn't just about the creatures. Senior concept artist David Levy talks about tackling vehicle design

Creating the universe of Ridley Scott's *Prometheus* required a small army of concept artists, who had to design virtually every aspect of the production, from the eponymous ship to the RT01 transport vehicle. Senior concept artist David Levy reveals: "There's definitely some of the old *Alien* DNA in there, because we all grew up referencing the same artists, but overall it wasn't a conscious decision.

"With the RT01, we were trying to create a research vehicle that looked like it came from a fairly extensive corporation. While... *Alien* was very much truckers in space and the second film was the army in space, this one was very much *National Geographic* in space.

"While the first film was very rough and rugged, Ridley told us not to get too hung up on that, because it's not the same audience we had in the Seventies. There are similar graphic elements, especially in the RT01 interior that we took straight out of the first film. Some of the buttons for example are more old-school, and so is some of the panelling.

"Although we could add new elements to our designs that the writer would integrate into the story, a lot of our designs serve a specific purpose. [When] I designed the medical pod in which a dramatic surgery takes place. That scene was very precisely scripted, so... our designs followed the script very closely."

sent up to us that were horrendous and did not work for the production, because they were made by illustrators who aren't very good at ZBrush. I would get this model to work from, and I'd look at it and think, 'Wow, this is a silky sack of a sculpture! Why don't they hire me to design this thing, and I could have had this guy sitting next to me, who's one of the best modellers in the world, [sculpt] it and we'll test it!' But now, this modeller has to work with this ZBrush model and make a model out of it. It's like asking a Harvard graduate to throw out the garbage.

"The thing is, a lot of the kids that want to be creative artists will say, 'Oh, I want to be a character designer!' Well, are you a character designer? 'Well, that's what I want to be!' No, are you a character designer, or aren't you? If you have to tell me that's what you want to be, then you aren't. You know it from when you're born that that's what you love to do. If you don't know it and just start to do it, you aren't that guy. If you don't draw well enough already, it's too late, you've missed it. You were too busy screwing around and going out and drinking with your friends and you didn't do the work!"

> "His more refined work serves as a blueprint for the legions of craftspeople that are tasked with bringing these characters into three dimensions"
>
> **Steve Johnson** XFX founder

The next chapter

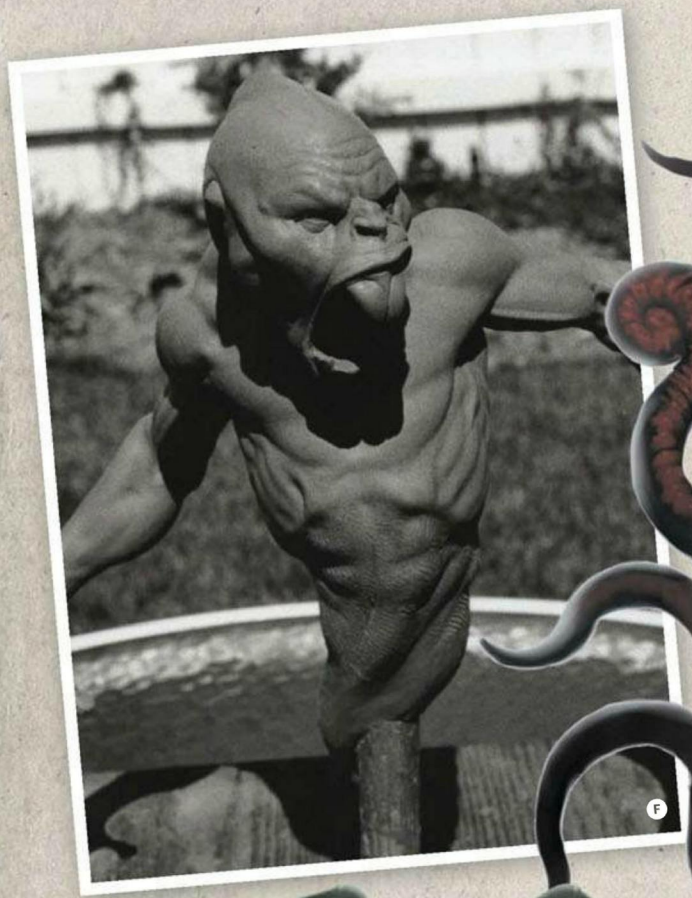
For Huante, life and work seem to go in cycles of around 13 years. His earlier stint in the creature shops of Los Angeles spanned a 13-year period, as did his work with ILM and Digital Domain. This means the next cycle is just about to start. "I've just been thinking about that, because there might be another change coming up," he hints. "Things are just starting to happen right now, so I was thinking, 'well, this is interesting; if we're going to do something different now, this is right on time.' There is something that might happen that could put me in a complete transition again, which is interesting. If that's the case, it will be interesting and I'm all open for it."

Huante fans will have plenty of opportunity to look at examples of his work up-close and personal. There is the new series of limited edition sculpture busts released by AnatomyTools.com, but also *Blind Spot*, the long-awaited new collection of work. "I had finished the book maybe a year ago," he admits, "and I was going to go through an online printing company, but when I looked at the finished book, I really didn't like the way it turned out, so I decided to go to a real printing company and I'm now self-publishing the book. I'm in the process of putting it together all over again in a new format, so I've been redesigning everything and that's been a long process.

"[Now] I'm just waiting for the final proofs to come in, and if they're good we'll go to press. I'll be posting updates on my Gallery Anatom Facebook Page, as well the Gallery Anatom online blog, so that's how I'll be promoting the book."

As Huante prepares to enter the next phase of his career, the future is looking bright for the talented creature creator. "Right now, the most interesting projects on the horizon for me are my own," he insists. "I have several projects that I'm working on that are very exciting [for] me and I hope they will be exciting to [other people]!

"Unfortunately I must work and make money to pay the mortgage and all [the rest of it]. I wish there was some super-rich person out there that loved to [fund] the arts and would support me, so I could actually make some of these things that I have in mind – wouldn't that be great? Until that happens, I'll keep working on whatever projects I can find that are interesting enough."



F

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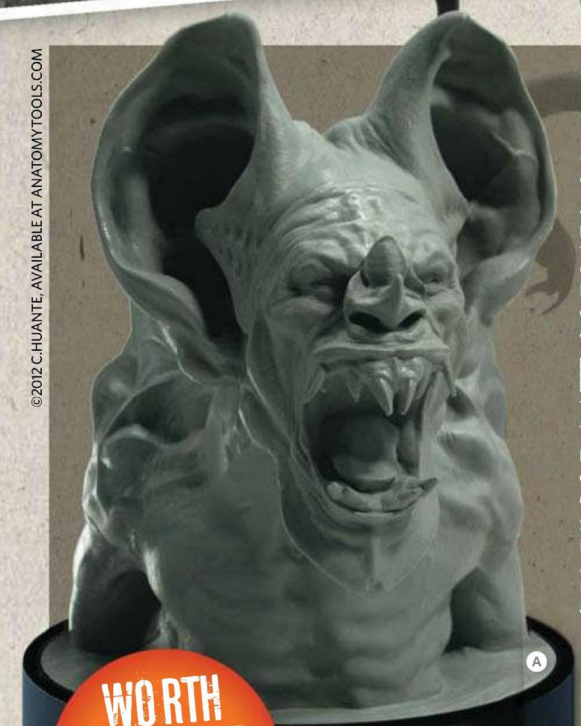
WIN

Learn from the master

AnatomyTools.com is offering three lucky winners the chance to own a monster bust by Carlos Huante

AnatomyTools.com has released several limited editions sculptures as part of its Artist Bust series. "Sculpture is probably the most intuitive form of art for me to make," claims Huante. "Long story short... Andrew Cawrse, owner of AnatomyTools.com, asked if I wanted to make a limited edition run of these small sculpts that I had just sitting at home on the shelf... I'm planning on making more sculpture my next round of artwork, so it was a good test bed."



A

WORTH $235

How to win

To enter the competition, simply answer the following question:

In what year did Carlos Huante fulfil the childhood dream of working on Ridley Scott's *Prometheus*?

Send your answer by email to 3dartist@imagine-publishing.co.uk with 'Carlos Huante Artist Bust competition' in the subject line. Include your name, your full shipping address – including post/zip code and country – and put your answer in the body text. The closing date for entries is 1 September 2012. The winners will be chosen at random and announced after the deadline.

B

A Originally sculpted in clay, this 12-inch bust goes to the first-prize winner

B Two runners up will receive one of these six-inch high character busts

TERMS & CONDITIONS: By entering this competition you agree to take responsibility for providing the correct mailing address to ensure prize delivery. Imagine Publishing and AnatomyTools.com will not accept responsibility for any charges incurred from custom duties and taxes or any incorrect or incomplete shipping details entered. Winning entrants will be responsible for any costs or inconvenience caused from returned shipments due to any shipping information error on their part. All winning entrants will receive notification of their prize via email, and the mailing tracking and delivery details from AnatomyTools.com. Winning entrants are responsible for being present during delivery or organising pickup from the designated delivery courier. Imagine Publishing and its partners have the right to substitute the prize for a similar item of equal or higher value. Employees of Imagine Publishing, AnatomyTools.com, their relatives or any agents are not eligible to enter. The editor's decision is final and no correspondence will be entered into. Prizes cannot be exchanged for cash or returned/exchanged/resold. From time to time, Imagine Publishing or its agents may send you related material or special offers. If you do not want to receive this, please state so clearly on your competition entry. All entrants agree to participate in any promotion related to this competition.

Sculpting
Texturing

CREATE THE COVER

Software used in this piece

ZBrush Photoshop

WorldMags.net

Sculpt an epic beast

Pteroscent: The Blue Hour 2012

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Jamie-lee Lloyd

Personal portfolio site
jamie-leelloyd.blogspot.co.uk

Country UK

Software used
ZBrush, Photoshop

Expertise Jamie-lee is a videogames character artist, currently working for Rockstar North. He specialises in character design, digital sculpting and real-time assets

"The attention to detail and anatomy in Carlos Huante's flawless work is inspiring! Here we've tried to capture the intense creature expression he does so well, in a ZBrush sculpt"

Jamie-lee Lloyd Is a character artist for Rockstar North

In this tutorial we will cover the process to create a creature from scratch using the new tools in ZBrush. We will mainly focus on DynaMesh and its ability to enable free-form sculpting without the constraints of topology. We will take you through the stages of sculpting and show how you can quickly extract, append and duplicate parts to improve your design in no time at all.

The most enjoyable aspect of working this way is the ability to keep the creative ball rolling and never having to leave the zone. We will essentially be taking a simple 3D primitive through the stages to a complete polished bust, without having to fret about jumping between packages or hitting any snags. We'll touch on posing and PolyPainting the creature before hitting BPR and preparing for the final illustration.

Concept

Carlos Huante's creature concepts are insanely detailed and very well thought out. The powerful pose and facial expression of this vampire bat really bring this bust to life! The details and bone structure are a great reference point, and the silhouette is very appealing to me.

I compiled a mood board of some of Huante's other creature sketches as reference for the sculpt. One of the challenges was to keep control of the design – it would be easy to make a mash up of all the different designs and end up with a something inconsistent.

Pull shapes to create form

Create the base mesh and block in shape

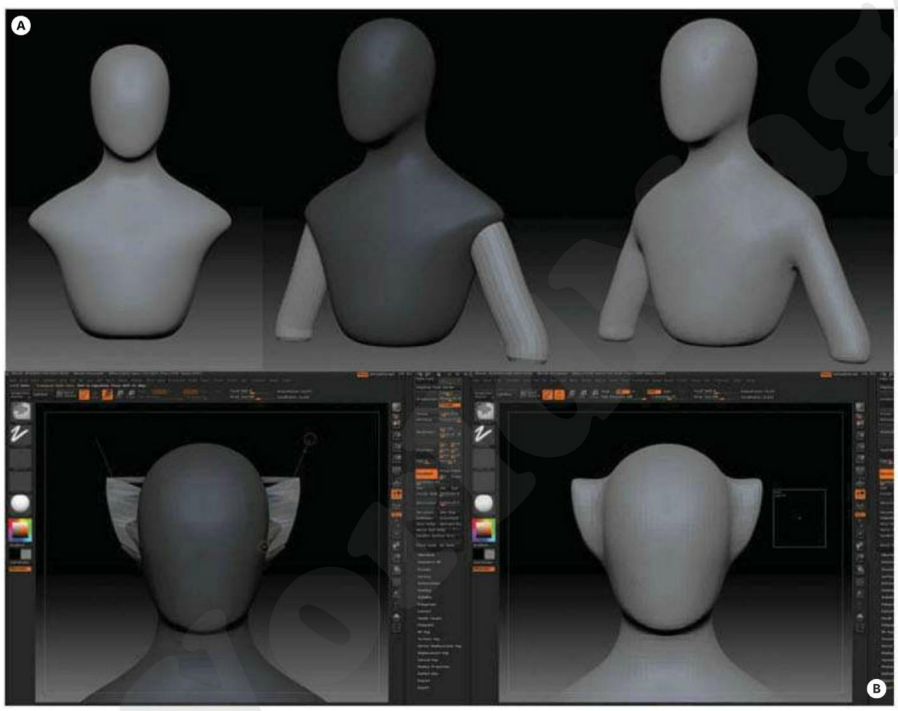
01 Block from a sphere

Go to Lightbox>Tools and select PolySphere. Navigate to the Tool>Geometry menu and click the DynaMesh button. This will activate DynaMesh mode, but at this point we'll keep the DynaMesh resolution quite low so we can pull things around easier. Move the Resolution slider to adjust.

Use the Move Elastic and Move brushes, with Symmetry turned on, to pull the sphere into shape. Change the brush sizes to target smaller areas, like pulling out the neck. By holding Cmd/Ctrl and dragging outside the canvas you can refresh DynaMesh and always have topology to work with.

Pull the mesh around to get a rough bust shape then use the Curve Tube brush to drag out the arms (the size of the brush determines the thickness of the tubes). Once dragged out, the bust will automatically mask itself, enabling us to move or rotate the arms to fit them into place. When it looks okay, clear the mask and update DynaMesh. You will see the arms have been included in the mesh Ⓐ.

To create the big ears, mask a section on the side of the head, invert it, then use the Transpose tools to move and rotate them into place. Update DynaMesh as you pull out the ears – they require more topology to work with Ⓑ.



Ⓐ Pull the sphere around to create a simple bust shape

Ⓑ Update DynaMesh with Cmd/Ctrl-drag to build the ears

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Build up the forms

Continue blocking in your character

02 Block in the forms

Next use the Move and Clay Buildup brushes to start roughly blocking in the shape. At this point we'll keep the proportions quite human, just to get an idea of things. Use some anatomical references at this point, but don't get too carried away with the details. Using the Polish and Flatten brushes will help give an idea of some basic shape and forms. These harder-planed areas will act as reference points in the next step when we start to pose the bust C.

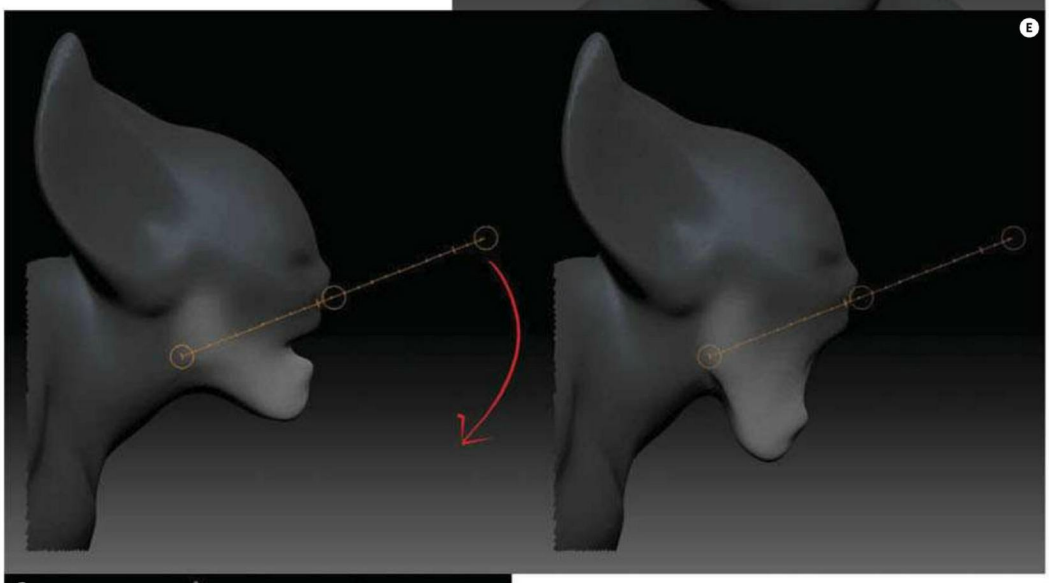
03 Open the mouth and make a pose

We want to go for a similar pose to the original Carlos Huante bust, but before that we'll try to get a better idea of the mouth and jawline. By thinking about the mouth area at this early stage we'll make it easier to nail the open scream when posing.

Start by adding a bit more resolution to the DynaMesh and begin blocking in the brow bones, nose and cheekbones. Then paint a mask line across the lip area, invert it and use Transpose Move to push it inside the head. Update DynaMesh and push things around inside – this will be our basic mouth D.

Next we'll begin the posing. As our DynaMesh is still quite low-res, we can blur masks pretty well, enabling smooth transposing. With Symmetry still on, use the Mask Lasso tool to select parts of the bust you want to effect. Blur the mask to get a nice smooth flow of topology when you're rotating them. We'll try to rotate from the areas where the bone would actually pivot from, for example rotating the jawbone to open the mouth E.

Push the bust forward from the stomach, rotate the arms back and lift the head up. We'll pull the neck forward slightly, and drop the shoulders before using the Move tool to adjust small bits like the area around the mouth. You can mimic a pose in the mirror – it helps to get the lines right and pick up on subtle details but just make sure no-one walks in on you F!



C Roughly add simple shapes to get an idea of proportion and form

D Rotate from the jaw pivot to open the mouth

E The rough, blocked forms sculpted earlier should help with reference points to make the posing quite relative, and keep the proportions intact

04 First pass

Begin again by adding a bit more resolution to the mesh and start working in the medium forms relative to the new pose. With the same method used in Step 1, pull up the nose flap and adjust the ears. Again, with the Clay Buildup and Standard brushes, work in a rough idea of the underlying bones and muscles while defining some fleshy areas. You can also push the mouth area inside and adjust the cheeks around it G.

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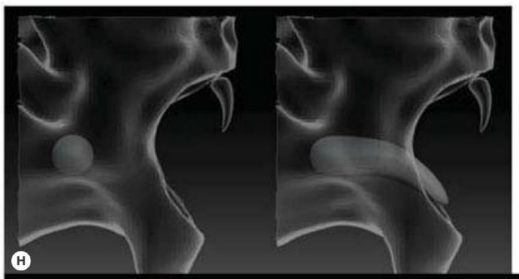
Create the teeth and gums

Append spheres and duplicate to shape the mouth

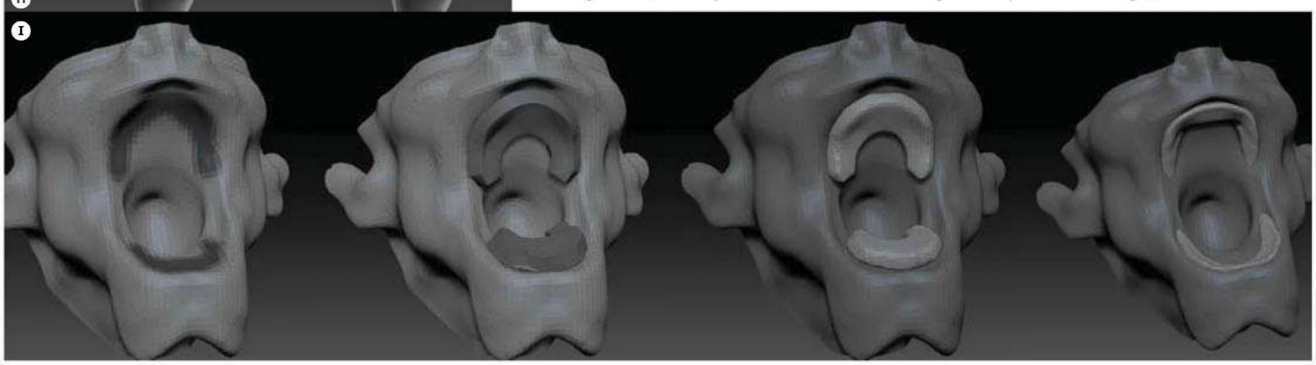


H

05 Extract gums and teeth To get a better idea of the expression, we're going to need teeth and gums. Hide everything but the mouth area and paint masks where we want the gums. Click the Tool>Geometry menu and select Extract. Our mask is extracted into geometry on a new Subtool. You can adjust the Thickness of the extract with the slider – click Accept to keep it. We'll then use DynaMesh on the extracted gums to move them into place.

For the teeth we use the same technique as in Step 1, append a sphere, scale it down and position it in the mouth, then duplicate it and move one inside the mouth. We'll form a tooth out of the first sphere and use the second to create the tongue. By activating Transparency and Ghost modes, you can adjust the tongue through the face and position it easily H.

We duplicate the teeth and then move/scale them into place. Work in a rough pass to get them looking decent, then adjust the whole mouth area to get the expression working I.



I

06 Duplicate parts and add a mesh

We want to add large shapes to the back to help the silhouette, so duplicate the main bust and hide the rest. Start by choosing Slice Curve (Cmd/Ctrl+Shift from the Brush menu) and draw around the ear – hit Opt/Alt to curve the line. When Polyframe is selected, you'll see that the Slice Curve has created a new Polygroup for the ear. With Select Rectangle highlighted, press Cmd/Ctrl+Shift and click on the ear – isolating the Polygroup. Select Del Hidden from the Geometry Subpalette to leave just the ear, which we place over the original bust and position using the Move brush. Adjust it to make a breathing duct feature on the character's back, then merge it down onto the bust.

With the bust and the new back detail as one Subtool, continue to add the skin flaps – a really nice feature of Huante's work. Choose the Curve Tri Fill brush and draw the flap shape across the chest and arms.

We'll then use the Move brush and Transpose tool to position the flap. Deselect the mask and activate DynaMesh to remesh the bust, back details and skin flaps into one J.

J

K

07 Complete the second pass

Now the main forms are in place, deactivate DynaMesh and begin the second sculpting pass. It's good to have room for further subdividing now DynaMesh is off – but if you don't, you can always turn DynaMesh back on with a lower resolution selected.

Use the Clay brush to work in the muscles and bones, and the Standard brush to emphasise tendons and fleshy areas. At this point we'll append a sphere to the bust, place it in the eyesocket, use the Clay Buildup tool to push the socket back and build up the lids around the eyeball. Use Select Rectangle to isolate the eye area to get in close K.

H Turn on Transparency and Ghost to adjust the tongue through the entire face

I Scale the teeth and mouth into place to capture the extreme expression

J Use Polygroups to build up details and enhance the silhouette shape

K Press Mirror and Weld in the Geometry Subpalette to flip the bust around

Tutorials

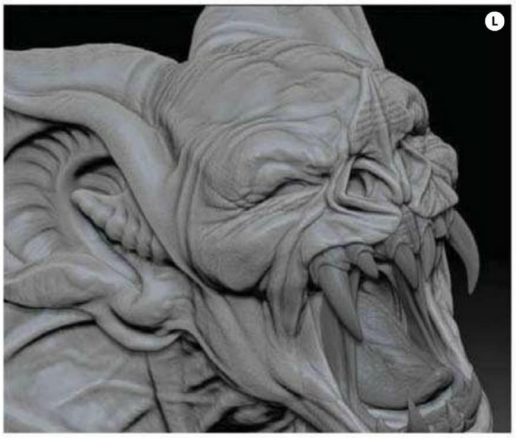
Refine and paint your creature

Add the final details and PolyPaint your masterpiece

08 The refining pass At this point, we use the highest subdivision level to refine the details. Pick the Clay Buildup brush to add subtle fibres to the muscles, and the Standard brush to define the taut and loose skin, paying attention to how it stresses and relaxes around the pose. Use the Dam Standard brush to cut wrinkles, followed by the Inflat brush to build up the skin – especially around the eyes and the bridge of the nose, where the expression forces the skin to fold up. Add a new layer with custom Alphas to add high-frequency details Ⓛ.

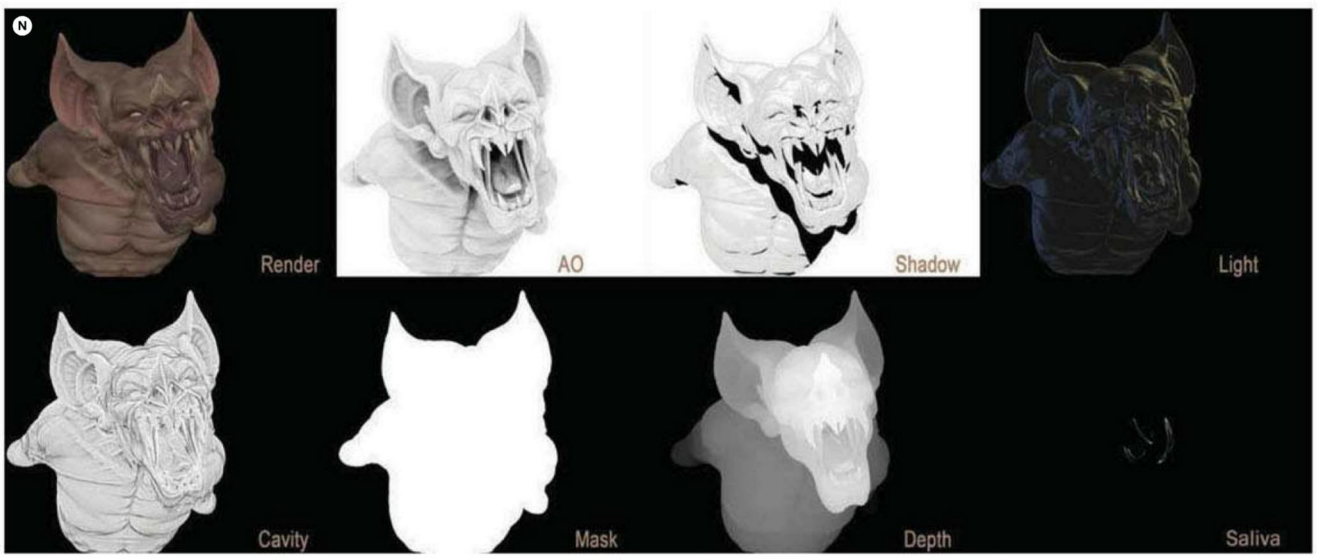
09 PolyPaint and asymmetry Since we're using ZBrush to render we'll use PolyPaint to colour the bust, as no UVs are needed and we have enough resolution to get great results.

Merge the bust with the other Subtools and apply a rough base colour to the whole model (Color>Fill object). We'll then use Transpose Move while holding Cmd/Ctrl to mask separate elements like the teeth and then fill them with their own colour. Repeat this for the eyes, gums and the tongue. With Symmetry activated, start painting some tonal variation with the RGB Intensity set to around 30. Add warm tones to the fleshy areas and darker desaturated tones to cavities, such as where the pectorals meet and behind the collar bones. Deactivate Symmetry and add subtle tonal variations using the Spray brushes. Apply warm shades to break the contrast and give it a fleshier feel, then add lighter tones where the bones push against the skin. Finally, use the DragRect stroke with various alphas to add patterns onto the skin and give a sense of underlying veins. Rotate the head and drop a shoulder to break up symmetry and use the Move brush to make subtle changes by offsetting features Ⓜ.



10 Rendering and presentation Now the bust is ready for the final illustration, open a new document, click Double Size twice and hit the AA Half button. Draw the model onto the canvas and find a suitable view. We decided to use a dramatic front-on view with eye contact. For this we will ramp the perspective up to about 150, which with the depth of field should be quite intimidating. Pick a suitable MatCap shader to complement the PolyPaint. Go to Render>Render Properties and turn on the passes you require, the quality settings for each pass is located underneath. Experiment with various settings, mainly adjusting the BPR Shadow and BPR AO Rays. Press the BPR button in the BPR render pass to start rendering. When you're happy with the results, click on the various pass icons to save them to a file on your desktop. We'll also render custom LightCaps and some standard MatCaps to experiment with.

Composite the render passes in Photoshop. Applying the Mask pass enables us to paint the background with colour washes that set the mood. Paint in layers of smoke around the bust to add atmosphere before applying the depth of field. Paint over the final result, adding details and specular highlights Ⓝ.



Ⓛ Skin pores and impurities are added using custom alphas with the Standard brush and Drag Rectangle

Ⓜ Use DynaMesh to create the lines of saliva in the mouth. Pull them out from the middle to suggest a powerful exhale of air

Ⓝ Experiment extensively with Overlay and adjustment layers to wrap it up

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Concept for 3D

Desert creature 2012

"I wanted to try designing a creature that would thrive in an arid alien environment, but something not outright scary; an ugly yet lovable character"

Daniel Baker, senior concept artist at Ninja Theory, currently working on *Devil May Cry*

Due to the creature's harsh, arid environment, the dry texture of its skin and shell seemed important and definitely add to the character
12 hours design time
Resolution: 6,000 x 3,200

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Daniel Baker

Personal portfolio site
dan-baker-art.blogspot.co.uk

Country UK

Tools used
Photoshop, pencils, sketchbook

Expertise As a concept artist at Ninja Theory, Daniel could be asked to work on anything from environments and props to characters, but he particularly enjoys designing creatures

The desert creature I worked up for Daniel Crossland's tutorial piece came together quite quickly. We decided, after seeing all the fantastic work done on *John Carter*, that it would be a great challenge for us to create our own alien desert creature.

We decided quite early on that it would be interesting to see something that wasn't outright terrifying, but was weirder in nature. We began thinking of how it could be a creature that managed to be cute, yet was still strange and other-worldly at the same time.

As I would do for any creature design brief, I set about researching what sort of creatures live in the deserts on our own amazing planet. From this I collected images of desert lice, infant armadillos and even scorpions.

I find I do most of my work straight in Photoshop these days, working up a number of silhouettes, then progressing them to a refined sketch and colour wash phase, finally moving to a more rendered piece. On this occasion, however, I thought it had been a while since I worked traditionally, so I dusted off the old sketchbook and mixed this up with Photoshop work.

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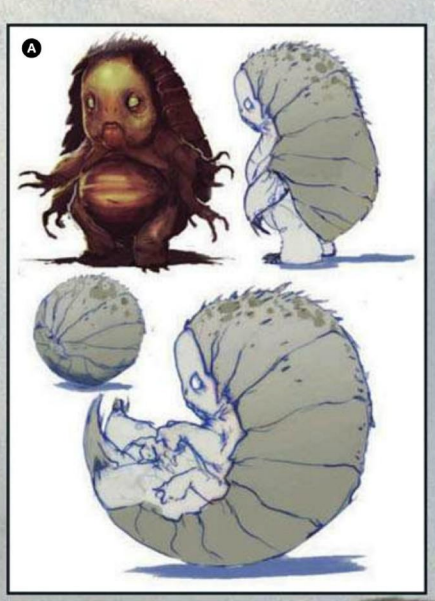
With the background environment, I tried to create an impression of an alien world without it overwhelming the character. I used numerous photographs of desert rocks and added the planet just to ensure the viewer knew we were somewhere else

Although I went for quite a realistic finish to the image, I tried to maintain a stylised silhouette



A I liked the infantile look of the first sketch but it seemed to be missing something...

B Adding in claw-like legs seemed to be a real turning point in the design process

C The final painting of the creature pushed the design in a darker, more gritty direction

01 First sketch This was pretty much a humanoid desert louse. Daniel Crossland and I both liked where this was going: it still seemed to be missing something, almost as though it wasn't quite alien enough A.

02 Pushing the design After a quick discussion, we decided insect-like legs and aging the creature was the way forward. It was here we felt we had hit on something B.

03 A slight change in character This is where the design started coming together. After the initial sketch and a quick colour wash, we decided for the final painting to push for a slightly darker direction.

Making the pupils less visible and giving the eye a more glassy feel helped with this, as did the texture overlays I used on the face and shell, giving the creature a much more realistic and earthy tone C.

Concept

I wanted the desert creature to look tough, resilient and alien, but non-threatening. The creature was to have skin and features that made it look old and young at the same time

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Software used in this piece

ZBrush | Maya | mental ray | Photoshop

Create a high-res creature

Desert creature 2012

> With this project we wanted to create something a little different, so we mixed a few different creature styles together. We had a vision of a desert-dwelling creature, but a desert from another world that was dry but cool
>
> **Daniel Crossland** is a senior character artist

The aim of this tutorial is to give an overview of how to go about taking a concept and translating that into a finished render. In my job I have the great fortune of working around really talented people, so I asked Daniel Baker, a senior concept artist here at Ninja Theory, to help create this creature. We were keen on the idea of a desert-dwelling creature on the side of cute but still grotesque, much akin to some of the creatures from the recent film *John Carter*.

After taking Daniel's concept (pages 54-55) I made block-outs in ZBrush to check the concept translated well into 3D. I will now show you how to go about making an asset to be shaded, lit and finally rendered in Maya. I'll also cover how I optimise my scenes for more streamlined rendering when memory can be an issue, and how to composite the final scene.

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Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Daniel Crossland

3DArtist online

Username: Pteropus

Personal portfolio site
www.dancrossland.co.uk

Country UK

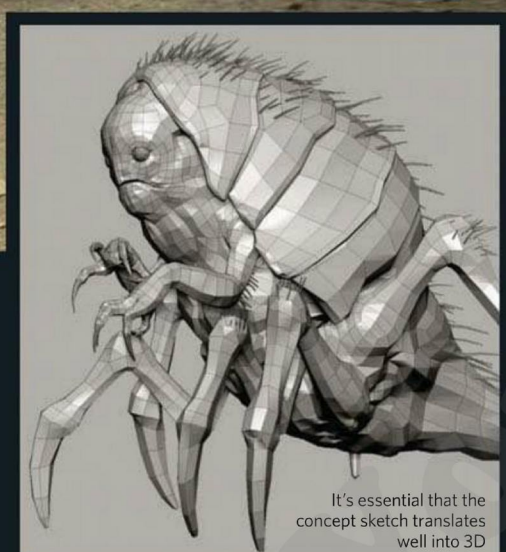
Software used
ZBrush, Maya, mental ray, Photoshop

Expertise Specialist areas include character design, concepts, high-detailed sculpts and 3D modelling

Sculpting
Texturing
Lighting

Concept

We started by discussing the direction for the character and, knowing Daniel's designs, I knew it was going to be something unique. After exploring a few ideas we both liked the louse concept



It's essential that the concept sketch translates well into 3D

A

01 Use a ZSphere rig Because the character has many appendages I prefer to make a basic ZSphere rig. This approach is far better then modelling a base in 3D as I can pose the rig, make global changes to the proportions and easily make an Adaptive Skin mesh to lay my basic forms down A.

B

02 Work with DynaMesh Daniel provided me with some silhouettes of the creature. A strong silhouette can inform the design and is enough to make some design sculpts in ZBrush, so from this point on I make an Adaptive Skin from my ZSphere rig, providing a new ZTool to start sculpting on. With this done I hit Use DynaMesh under the Geometry panel and started to sculpt. I spend a couple of hours at this stage just playing with the forms. These will act as conceptual meshes for you to base the final model on. Having a workable asset early on makes projects run much smoother B.

C

03 The digital sculpt process Digital sculpting with DynaMesh is now very much like working as a traditional sculptor. I like not having to worry about topology so I can just sculpt and let the model grow organically.

You always have enough resolution with DynaMesh. If you choose when to tessellate the model, by hitting Cmd/Ctrl and dragging a box outside your model it will update the mesh with new geometry to work with. I keep my meshes low and really simple. Once basic feature planes are blocked in, I then refine the sculpt's main masses into definite volumes that are polished with the hPolish brush. The modelling process for me is mainly to retopologise my DynaMesh tools so they can go to a refine pass, which cleans any artefacts C.

A A ZSphere rig can quickly lay your model out ready for basic sculpting

B Here we aim to block in major forms. Only a strong and accurate foundation for the work will ensure our success

C Using DynaMesh, we need to clean the mesh and sculpt the basic volumes ready for refining

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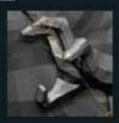
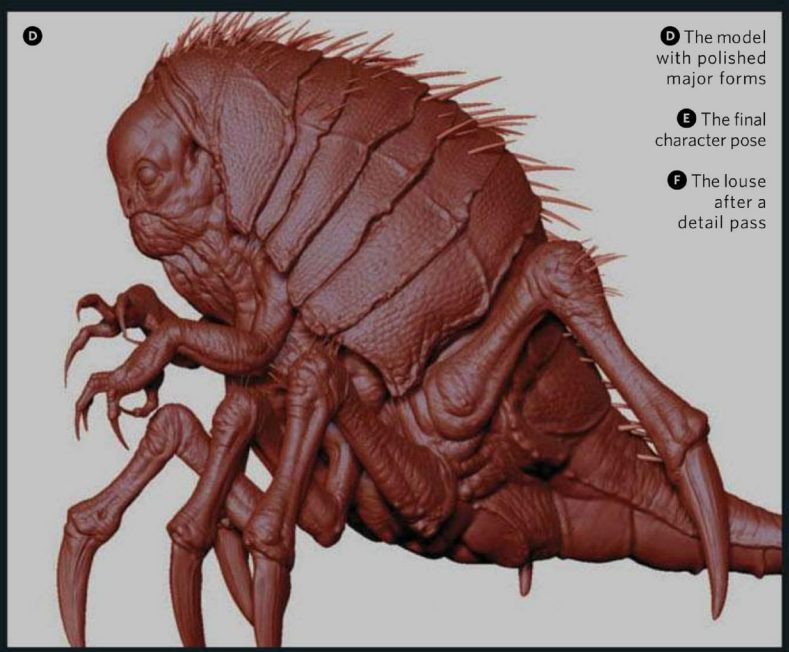


New topology

Transfer the sculpt to clean topology



D The model with polished major forms

E The final character pose

F The louse after a detail pass

04 Refinement pass At this stage I work up the sculpt to a refined state. All the main muscle masses and the skin quality are built but not in high-frequency detail. If we were to detail with too many wrinkles and too much noise early, we could lose the primary masses. Without these smaller details we don't have structure to keep the model together. For this pass I use my favourite brush, Clay Tubes, to place muscle. The Pinch brush also tightens areas and inflates at a very low setting to add volume where needed. I work each area of the face, smoothing as I go along. To tighten the primary wrinkles I switch to a high-specular MatCap and with the Dam Standard brush to go over the model, adding criss-cross marks to make only the major wrinkles. I polish these afterwards by stroking the hPolish brush lightly over the entire model, one area at a time, to complete the refinement D.

05 Remain flexible In my day job, the ability to be flexible to change is of the utmost importance. We tried lots of different poses using the Transpose tool in ZBrush, and Dan worked some pose silhouette thumbnails so we could explore further. In the end, we fixed the pose to be more hunched over, where the character is slightly turned to look at the viewer. Once the stance was fixed I did some corrective sculpting around the joints. It's best to fix this before going on to high-frequency detail. You are safe to then concentrate 100 per cent on those final details, assured that your pose will work for the final angle of the shot E.

06 High-detail pass Once I'm around Level 6, I divide my mesh using HD sculpting. This takes my model to ten million polys per SubTool. By hitting the A key over an area of the sculpt, I go into HD mode. The main reason I've recently started using HD sculpting is because then I can also use HD PolyPainting, which makes creating texture maps much quicker. As long as I sculpt the detail into my model, it's all there for making masks and painting. For detailing I use a combination of the Standard brush with the modifier set to around 30. This will use the Push and Pinch functions, which work really well for the wrinkles. Additionally, I usually tighten them with Pinch and steady strokes, with some more Dam Standard brush thrown in to deepen the crevices F.

Artist Showcase

Daniel Crossland

My fascination with art started at the age of four and it continues to fascinate me to this day. I'm currently senior character artist at Ninja Theory and in a lot of my work I like to focus on traditional art skills by looking at anatomy and real clay sculpture. I find this keeps me focused on pushing my art. I try to replicate the same level of realism and quality in my digital work.

Fetal skull **Maya, ZBrush (2010)**
I modelled this skull as part of some learning sculpts, to improve in sculpting and the development of form

Udasaur **Maya, ZBrush (2011)**
I sculpted this creature based on one of the creatures from *The World of King Kong* natural history book. This creature didn't appear in the film so I took the chance to realise it in ZBrush

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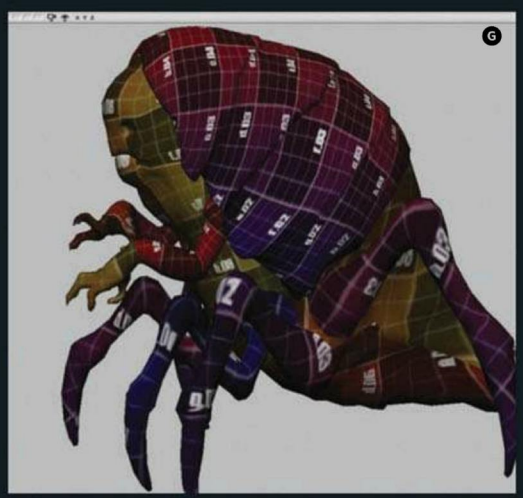
Create UV maps

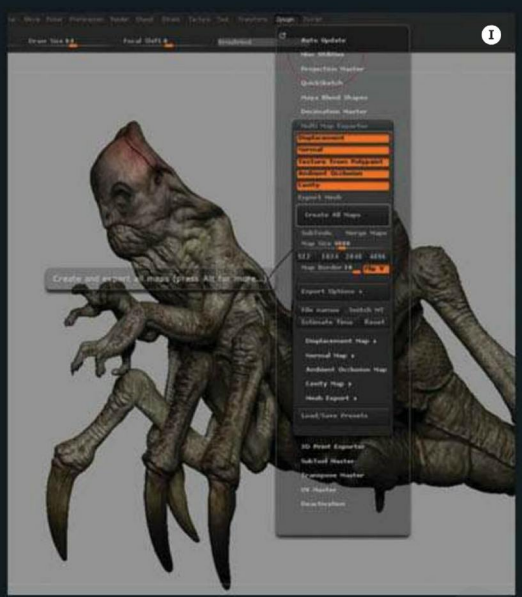
Prepare the model for lighting and texturing



07 Steps for setting up UVs To set up my UVs I use UV Layout Pro. Switching all my creature SubTools to Level 0, I export my meshes and load them in for unwrapping. By marking where we want our seams, we can extract those meshes into pieces for flattening. Once I have clean UVs with no distortion, I import them back into ZBrush over my original meshes with these new UV versions. This updates the tools so I can now bake and paint my maps G.

08 Eyes, claws and spines Once the main body is resolved I add additional geometry to the eyes, spines and claws. I model these in Softimage and add them as a separate SubTool. Using the same workflow I add UVs and do a sculpt pass to add some details H.

09 Bake maps Next I bake out the base maps that I will use later for textures. To set up my textures in ZBrush I set my resolution under the UV section, choosing the highest map bake of 4,000 and maximising the edge bleed to 16 pixels so I have no issue with seams on my normals. I then drop down to Level 0 and use a multimap exporter to bake out my Normal map, Displacement map and PolyPaint in one go I.



Problems and solutions

Once I have my refined sculpt I prepare the model for rendering. This means making some new topology from which we can make UVs for texturing. I currently use Silo at work to create new topology, but there are many other options to create new meshes, as long as you have the ability in your program to draw polygons and get them to snap to your high-res source. Keep in mind the direction and flow of the polys you draw, as good directions will facilitate your sculpting and also optimise your model for the rendering stage.

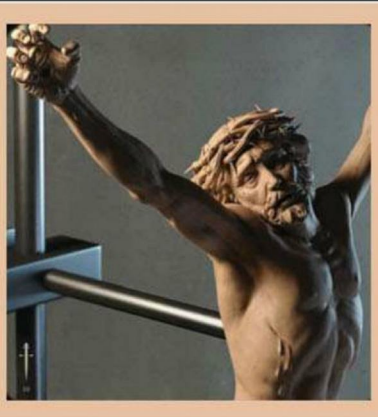
After making my new mesh I can now project my DynaMesh sculpt onto it. There are a few options to get this to work, but assuming the models are pretty well surfaced, each should be fairly straightforward. In short, you need to bring in your new mesh, subdivide it four times and then go to Project to get the detail from your DynaMesh. Usually there will be a clean up of this mesh where the projection has broken, such as under the arms. I clean this then move to the polish phase of the sculpt.

G Distortion-free UVs

H Additional features

I The ZBrush multimap exporter at work

J Texture map bases



Corpus **ZBrush, Maya (2011)** This piece was created for a 3D print. Eventually it will be cast out in bronze

10 Paint the bases Painting the bases is pretty simple. I like to roughly match some basic SSS colours so the model will give a good appearance of skin when I come to render. In this step I block in Photoshop colour by filling with basic skin values using the Paint Bucket tool. In this case the skin is quite cool, so I add a blue Overlay layer on top of my bakes from ZBrush and balance them so they're not too strong. I make a map for each slot that includes an epidermal, subdermal, backscatter, Diffuse and an Overall map. Making these basic block-ins will give me a good idea of how to treat the skin and the feeling of the work before getting into fine detail J.

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Move into Maya

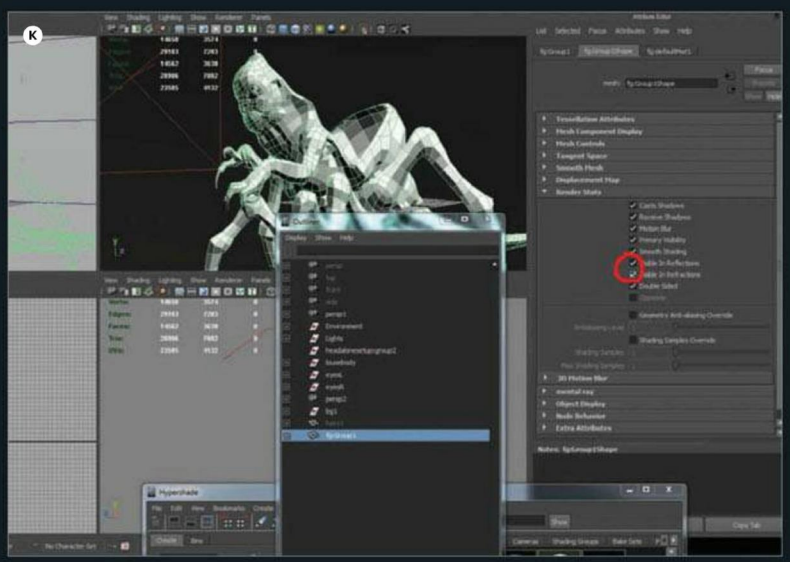
Take the model and lay a foundation for the light rig

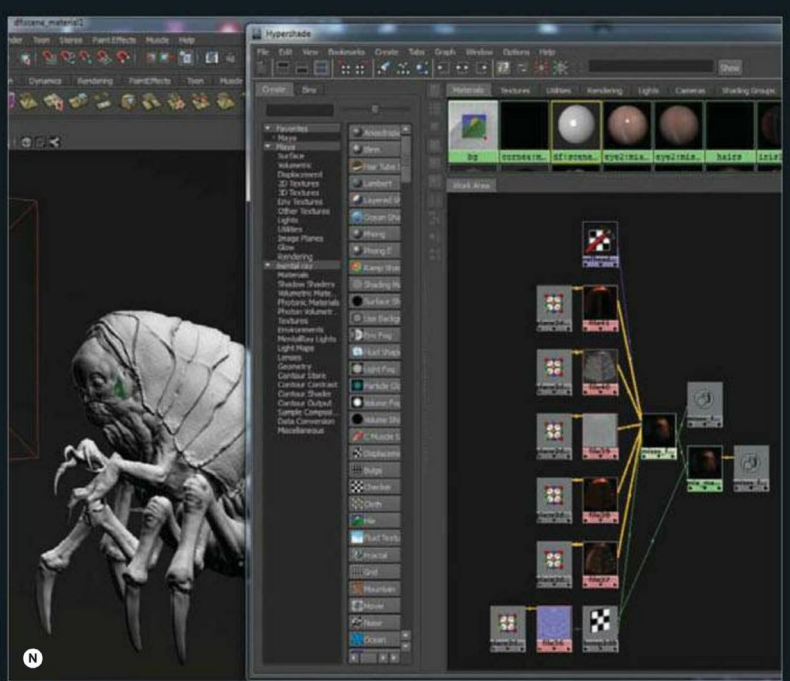
11 Export meshes from ZBrush Exporting meshes has never been easier. I use GoZ to export all my meshes out for light tests at the same time. I always build my models to real-world scale so the SSS setting will be relative and won't cause any issues with my skin shading. I set Maya to centimetres, import my OBJs, and in the Object Properties set my Geometry to Visible In Reflections and In Refractions. This is necessary when bringing in meshes from ZBrush (K).

12 Pre-visualise light Dan and I had a brief discussion on how the character should be lit and felt that we would like to avoid the typical warm earthy tones. Instead we both felt a cooler palette would look a little more sinister and also convey a strange landscape. This would bring an almost twilight feel, like the character was lit by moonlight. I did some basic lighting studies before I set up the final lighting (L).

13 Light the scene I always apply my lighting in another Maya file so I can better concentrate. I use a low-res proxy mesh of the creature to do my light tests. I have two key lights and one back light; additionally I use some bounce cards with incandescence only to add bounce light when using final gather. I use area lights with the Mia Portal shader plugged into them, which gives bounce light effects so you can take it easy on final gather samples and speed up render times. In the portal light attributes, I tick Enable Sky Portal and tweak the Intensity multiplier until the image is the correct brightness. At this stage I also plug the MR photographic shader into the lens of my camera, along with a blackbody node that will simulate real work values. This will enable me to essentially take a digital photograph of my model and make use of realistic camera effects, such as bokeh. I build up effects such as depth and bokeh in another pass, which I blend later in Photoshop as they can take time to render (M).

14 Subsurface scatter Here I add the SSS shading networks to the body shell and eyes. I begin by blocking out each component of the SSS effect on its own by switching off the backscatter and subdermal scatter. I concentrate on Epidermal Weight and Radius values, going through each element in the same way before finally adding them together and doing test renders, balancing the effect as I go. I like to get the SSS looking as good as possible before plugging any maps into the channels. Once the correct values have been achieved for the skin, I polish these shaders with maps (N).





(K) Use GoZ to export out of ZBrush for light tests

(L) Lighting can make or break an artwork, so be careful

(M) Taking numerous light tests is an essential stage

(N) Add SSS shading before plugging any maps in

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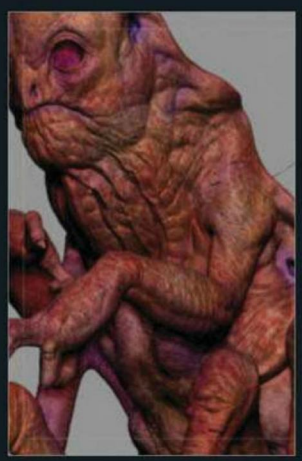
Skin shading in mental ray

Set up the skin in Maya

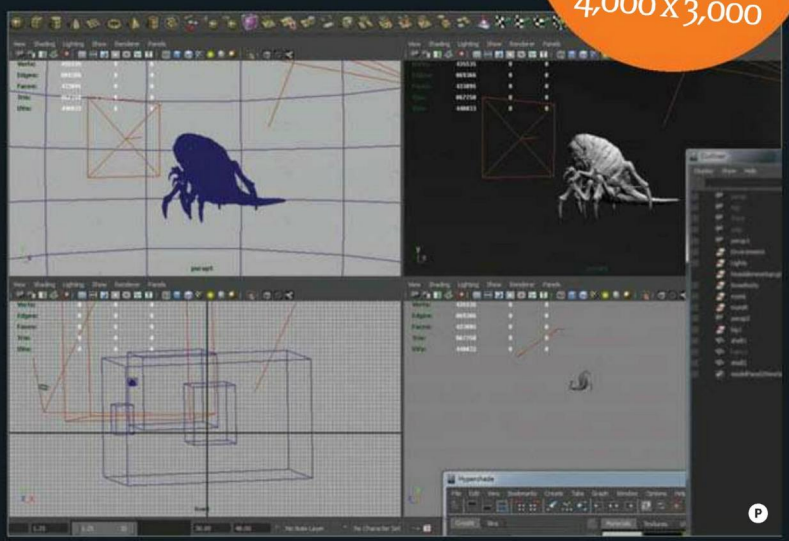
4 hours render time
Resolution: 4,000 x 3,000



15 Texture refinement To make textures I use ZBrush and PolyPaint. As mentioned, for high-res sculpting I switch to HD. I also do my PolyPainting at HD levels so I have plenty of pixels to play with. By masking my model by cavity I can isolate the raised parts and begin painting some light colours into each cavity of the mesh. This works really well and gives you a really detailed map to use in your rendering. I usually paint lots of splatter and noise into the map, adding veins and other imperfections to really sell the image. Scattering the brushes with an alpha and spraying strokes adds great depth to your maps. I use this along with a spotlight to blend imperfections from real photographs into the skin O.

16 Build the final render scene For rendering I add all the OBJs that make up my creature at a mid-level mesh. I use Level 3 so I don't have to displace to any great detail, as displacements can soon eat up lots of memory if used to displace the high-frequency details. For this model I use a combination of Displacement and Normal maps. I use a Displacement map on the body and shell to take the model up to a smooth result, then Normal and Bump maps for fine details. This is faster for your machine when it comes to rendering and gives you great control of the details as you add them into your model. I then check that everything is working with a test render at small dimensions, to make sure there are no nasty surprises before I hit the Render button P.

17 Finalise the image The image took me about a week of balancing the SSS shaders with the scene to get the result I wanted. Test rendering constantly at small dimensions is essential, and using the Render Region tool to focus and refine areas before making any decisions gives great flexibility. Because of using a streamlined workflow with no high FG samples, I could make as many changes as I needed without bogging my computer down. I composite the final image in Photoshop and render it as a separate pass. Daniel made a background plate of the environment that was composited and graded into the render. This was then dropped in behind the model along with images of dirt to add a grungy feel. With further balancing of all layers, I colour correct the main passes to finish the image Q.



O Build up the skin using HD PolyPainting for an impressive effect

P With all the elements added we can start the test render process

Final thoughts

I think when creating a character like this the design is really important. You have to feel good about what you are producing, otherwise I find it doesn't flow as well as it should.

In this industry we have really open critiques, which helps push design further than it might usually go. Making concept sketches or a digital sculpt sketch is now possible, and I feel has really opened up more creative workflows. As a result we can now see just how a model will look before going into full production. I feel this is a great advancement and has benefited my workflow tremendously.

I have always felt that studying traditional art is the best recipe to follow in creating successful artwork, and that remains true. There's a lot to cover in a short space on the entire breakdown of this character, so if you have any specific questions feel free to contact me via my website.

Good luck with your own artistic endeavours!

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I made this...

Incredible 3D artists take us behind their artwork

The Flying Circus 2012

As soon as I saw the concept art from Olivier Derouetteau I liked it so much I had to make the conversion to 3D! I fell in love with the universe he created; the sense of childhood adventure that this image transmits. Also, I have a six-year old niece who's learning circus tricks, so the idea occurred to me to make a giant poster for her bedroom, so she can dream of adventure herself!

Artist info

Simon Blanc
3DArtistOnline
Username: simon sixmoon
Website www.simonblanc.com
Country USA
Software used 3ds Max, ZBrush, Digital Fusion, Photoshop

The Flying Circus. Original illustration by Olivier Derouetteau. www.olive2d.fr

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"At Blur Studio we work mostly on animated sequences, so everything we do is pretty much full CG... I simply shot a real sleeping bag and integrated it on top of the simpler 3D model – it saved me a ton of time on something that I could have done in 3D... Thinking about your goal will save you a lot of useless work!"

"No matter how good a Bump or Normal map is, you can save a lot of time by playing with different maps quickly to see what kind of cool results you can get on a pretty simple mesh. The 2D Displacement in V-Ray can [quickly turn] any base mesh into a complex sculpt"

Software used in this piece

3ds Max | ZBrush | Digital Fusion | Photoshop

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Concept: The little girl is so happy that a bee decided to taste her lollipop. The bee doesn't look as happy. This sketch will be our guide through the tutorial

Next issue: Learn to set up physically-correct lighting in V-Ray, create a diverse range of materials for cloth, skin, candy and more, and discover Jose's hair and fur techniques

On the Disc

Original sketch to align camera perspective: bee_sketch.jpg

Software used in this piece

ZBrush | 3ds Max | V-Ray | Photoshop

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Create stylised characters

Lil' B 2012

Sculpting
Modelling
Topology

"Create a 3D illustration with shortcuts"

José Alves da Silva is a freelance character artist

Both illustration and film uses 3D but, even though the techniques are similar, the approach for each can be quite different. An illustration gives the artist a lot more freedom and skips a few technical steps that would be essential when preparing for animation.

Creating a 3D illustration can be a lot faster if we plan ahead, which enables us to know what to skip and where to invest the details. In this article we will be preparing a 3D illustration following a concept to optimise the production process. ZBrush and 3ds Max will be used together for modelling and posing. We will also be making extensive use of the new V-Ray 2.2 for the rendering and materials, especially its new Hair Material that enables hair to cast reflections, receive Global Illumination and V-Ray lights. We will learn all the necessary tricks to achieve a good result with this most recent feature.

Step by step
Easy-to-follow guides take you from concept to the final render

Artist info

José Alves da Silva

3DArtistonline

Username: zeoyn

Personal portfolio site
www.artofjose.com

Country Portugal

Software used ZBrush, 3ds Max, V-Ray, Photoshop

Expertise José specialises in character creation, ranging from 2D concepts to finishing textured 3D models suitable for animation and more

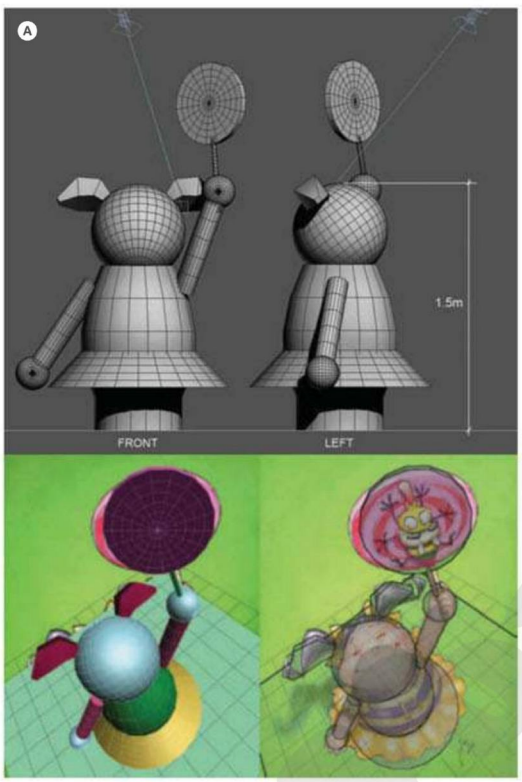
Begin with basic shapes

Work from the concept sketch to begin the model

01 Begin composition in 3ds Max

In 3ds Max, set units to Meters. The correct scale is very important for accurate light and hair rendering. Set the render size to 767 x 1,000px and enable Safe Frames (Shift+F) on the viewport to match the concept's proportions. Set the concept image (free with this issue) to be the viewport background (Opt/Alt+B and Load Image).

Build a ground plane and a rough version of the girl 1.5m high using primitives. Make sure that the centre of the girl's body is at the co-ordinates 0,0,0. Create a camera with a 33mm lens and place it so that the perspective matches the concept on the background. For the lollipop make a 0.25m radius Cylinder with 18 sides and six different Cap segments A.



02 ZSpheres base

Select all objects and pick the GoZBrush from the GoZ menu, ZBrush will then open. Drag the document and hit T to edit the model. This rough model will be used as a reference for proportions.

Press Append (Subtool menu) and pick ZSphere. Enable Transparency (Trans button) and scale the ZSphere to be the girl's belly size. Activate Symmetry (X) and create a new ZSphere to make the trunk. Extend the head, arms and legs. Add ZSpheres at the wrists and knees, then extend the feet. From the hand extend the fingers and press Make Adaptive Skin. ZBrush creates a new Skin_ZSphere tool. Press Append and select to add it to your tool B.

A Setting the camera view in advance will let you know where to put the detail

B ZSpheres are great if you need to block and test your character's volume

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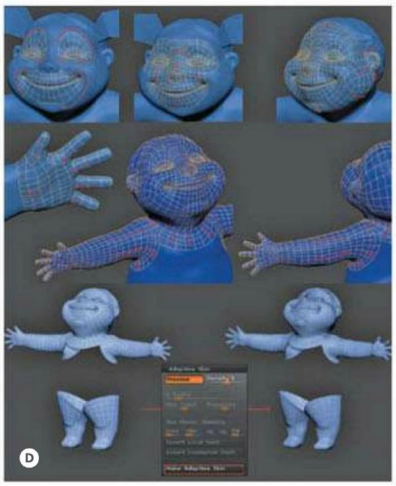
Models and maps

Prepare topology and UVs for the next stage

03 Sculpt the body Subdivide the body three times, slide the DynaMesh Resolution to 8 and press DynaMesh (Choose No when prompted for Freeze Subdivision). When working in this mode every time you hit Cmd/Ctrl and drag on the background, the model will be remeshed and generate new geometry as you need it.

Enable Symmetry and, using the Clay Buildup brush, start marking the main facial features. Detail the features just enough to use them as a guide as they will be retopologised. On the body refine the hands' volume and mark the main body masses. Remesh every time the surface starts to become stretched and you need more detail C.

04 Retopology – body parts We will retopologise the DynaMesh to create a lighter model and enable cleaner UVs. Append a new ZSphere and under Topology choose Edit Topology. As you click the surface you create vertexes that close as polygons, creating new geometry. Enable Symmetry and, following the facial features, create polygons looping around the mouth and eyes. Create a nose and ears connecting the surfaces. Extend the surface to cover the back of the head and neck. Create polygons looping around the fingers, extending along the hands and arms until they connect with the neck. Create polygons along the legs and close feet. Under Adaptive Skin set Density to 5 and click Make Adaptive Skin. Append the new model to your tool D.

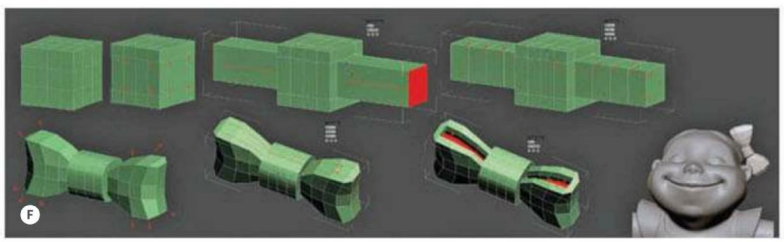


By creating new topology on top of the DynaMesh you can build all the dress parts

05 Retopology – dress Append a new ZSphere and start topology for the dress. Create a bathing suit shape with openings for arms, legs and head. Under Topology set Skin Thickness to 0.25, click Make Adaptive Skin and Append. Create new topology with a loop of polygons around the waist and shoulders. Add a thinner loop that will represent the elastic that holds the cloth. Activate Transparency and Ghost mode to move vertexes freely, creating the edge of skirt and sleeves. Include several new edge loops. Under Topology set Skin Thickness to 0.25 and lower the Density to 1. Click Make Adaptive Skin and Append. Set Crease Tolerance to 25 and press Crease to prevent the edge that defines the elastic from smoothing. Finally, subdivide the parts E.

06 Ribbons and pigtails In 3ds Max, create a 0.06m cube with 4 x 3 x 3 edges. Apply Edit Poly and Symmetry modifiers. In Edit Poly, move the edges and extrude the central side faces. Add two horizontal loops and three loops along the extrusion. Move vertexes to shape the ribbon to a butterfly shape. Add two extra loops and extrude the central top faces on the bow inwards. Press GoZBrush in the GoZ menu.

In ZBrush, append the ribbon to the girl tool. Position the ribbon on the head and shape it with the Move brush. Append the ZSphere and create a chain with a pigtail shape. Click Make Adaptive Skin and shape it with the Move brush. Using the Subtool Master (ZPlugin menu) mirror the ribbons and pigtails F.



C DynaMesh is very good for building a concept as you are not limited by the original topology

D Topology should follow the facial and body features

F For box modelling, use 3ds Max and import models into ZBrush

G Detailing takes time, but it's also one of the most enjoyable parts of the process

H Use a checkered pattern to verify the UVs distortion

I A clean UV layout will make the texturing job much easier

J Using Transpose Master and masks you can pose a character quickly and relatively simply

K Create the bee at the centre and aligned to views, to benefit from Symmetry during sculpting

A word on topology

Topology is very important. Creating geometric edges that follow the surface landmarks results in models that are lighter, easier to apply UVs to, more suited for animation or posing and better for sculpting. However trying to create the perfect topology for a model whose form we are still busy defining is difficult. Personally I prefer to divide the model creation into two stages: one that is 100 per cent artistic and another that is 100 per cent technical.

The first phase must be flexible and careless regarding polygon count and edge flow. Start by using DynaMesh and its capacity to generate new geometry as you extend your model to visualise and test your ideas. Don't make the mistake of detailing too much at this stage as the model is quite useless with this type of edge flow.

The second phase is retopology. Having established your idea, create geometry on top of your 3D sketch with the best edge flow. Then you can detail it comfortably as the direction of surface geometry matches the direction of the details. I believe this strategy gives you the best of both worlds: unrestricted creativity and accurate topology.

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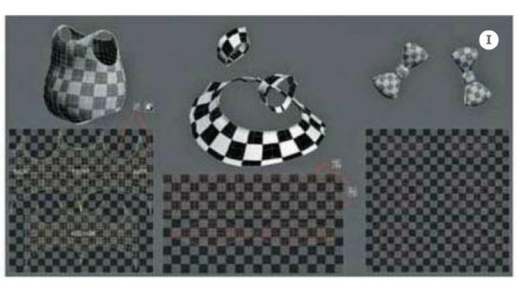
Combine assets

Unwrap your UVs and make a pose

07 Make fine details Using the Standard brush, stroke from the inside to the outside to create folds. Subdivide and sculpt detail on the folds. With the Dam Standard brush create a rim at the edge of the sleeves and skirt. Subdivide the dress, mark the edge around the openings then sculpt folds at the waist and chest. Subdivide the body then, using the Clay Buildup brush, detail the face. Mark the mouth and eyeline with the Dam Standard brush. Unmask one fingernail at a time and rotate from a side view to create the nails. Use the same brush to mark the wrinkles and sculpt the hair ribbons with the Clay Buildup brush G.

08 Character UVs Select each subtool and press GoZ to export to 3ds Max. Apply the UnwrapUVW modifier, select edges where UVs will be cut and set Convert Edge Selection to the seams. Choose Open UV Editor, click the Peel mode button and disable it. Choose Tools>Pack UVs to separate the UVs and enable Peel mode again. To shape the UVs select vertexes that you want to be fixed and choose Pin Selected. Move other vertexes to reshape the UVs and get a good layout. Click GoZ>GoZBrush to update the ZBrush subtool with these UVs.

On the body, keep seams behind the head and follow the hair line. Create seams to separate the ears and arms, leaving easily identifiable UV islands that will make the texture painting task easier H.



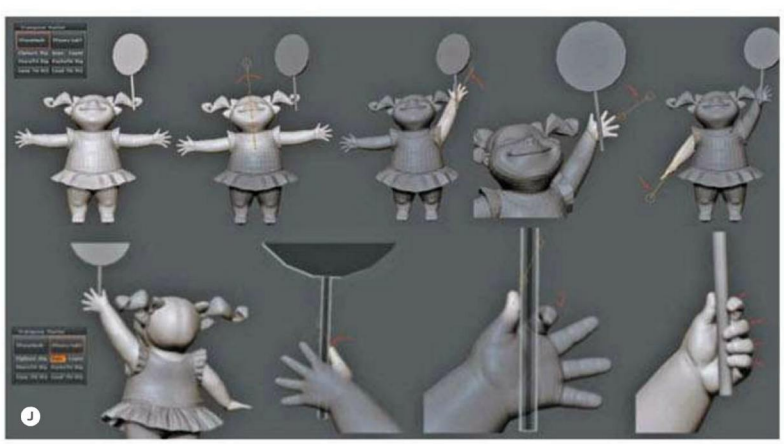
09 Add clothing features On the dress, make seams at the openings and a vertical one at the back. In Peel mode, select the vertical edge loops on the sides and align their vertexes using Align Vertical (under Quick Transform) this will enable an undistorted layout, easing the task of pattern creation later on. For the skirt, shape the UVs into a rectangle and align the vertical and horizontal edges to allow for a pattern. On the ribbons, use seams to separate the central knot from the bows. Regarding the lollipop, create a seam at the back edge of the cylinder I.

Bee smart

Throughout this tutorial you will notice that we are literally working for the camera. An illustration consists of a very specific point of view of a certain moment in time. As a result there are many occluded parts. You should take advantage of that to make your work quicker and more enjoyable. I will describe a few shortcuts.

The back of the girl hasn't been detailed as it can't be seen. The legs have only been modelled roughly because their only purpose is to create shadow. The UV seams have been placed on the back of the girl and on the belly of the bee in order to hide texture-continuity problems. Posing was made with Transpose Master instead of rigging the character as we won't be using it for animation or different poses. The lollipop was only detailed on the visible side.

In the next chapter this logic will persist, keeping the scenario only as big as the field of view of the camera, ensuring the objects that are out of focus are very simple. Minimum effort and maximum impact is the idea here.



10 Pose the character Delete all the subtools, except the final parts and lollipop. Under ZPlugin>Transpose Master choose TposeMesh. Unmask the trunk and rotate it to the character's right. Unmask the right arm and rotate it up to reach for the lollipop stick. Adjust rotation of the right hand. Unmask and rotate the left arm down and rotate the left hand up. Under ZPlugin>Transpose Master pick Tpose>SubT. The pose will transfer to the original subtools. Using the Move brush, correct the deformations that might have occurred during posing. Select the body subtool and by unmasking each of the fingers and using Rotate mode, pose each finger to make the hand grip the lollipop J.

11 Shape the body Duplicate the lollipop subtool and move it to the centre for reference. Using ZSpheres create the body, head and nose of the bee positioned against the lollipop. Click Make Adaptive Skin, append a primitive sphere and place it as an eye. Using the Transpose Master, mirror it and mark a temporary iris on the eye for better reference. Subdivide the body and sculpt it with the Clay Buildup brush, marking the eyebrows and mouth. Also sculpt the body sections of the bee. Create new topology, starting with edge loops around the eyes. Extend them to the nose and create a loop around the mouth. Extend polygons along the body sections, give a different polygroup to each body section, isolate them and press Crease to keep a hard edge between sections while subdividing K.

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Artist showcase

José Alves da Silva

I am a 3D artist working as a full-time freelancer and am dedicated to 3D illustration and character creation. I started working in the 3D field in 1996 and my passion for characters led me to embrace this creative area, allowing me to work with different teams from around the world in the fields of advertising, games and film.

Tequila Tatu **3ds Max, ZBrush, V-Ray (2011)**
I was challenged by *3DCreative* magazine to create an animal with a human attitude. The result was an armadillo with an alcohol addiction.

Mamma Mia **3ds Max, ZBrush, V-Ray (2011)**
The old lady cook was created as the mascot for an Italian restaurant. She is supposed to represent home-made cooking like mum used to make.

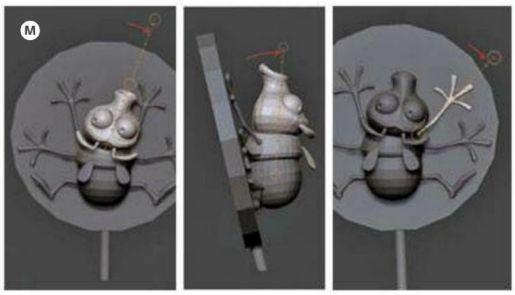
General Rhino **ZBrush (2012)**
Image created as a part of a tutorial for 3DTotals' *ZBrush Character Sculpting* book with the objective of showcasing the new potential of ZBrush 4R2.

Create the bee

Time to construct the bee character

12 Build bee sections Create a new topology on top of the bee's mid-section with the shape of a wing. Under Topology set Skin Thickness to 0.03. Click Make Adaptive Skin and position the wing on the bee's back. Delete the lower subdivision level and using GoZ export the body and wing to 3ds Max. Apply the UnwrapUVW modifier and mark seams as in the image using Peel mode. Adjust UVs and use GoZ to update them on ZBrush.

Using ZSpheres, create one arm, a leg and an antenna. Sudivide and detail with the Clay Buildup brush then duplicate the extra arm from the existing one and position it. Mirror all these parts using Subtool Master Ⓛ.



13 Pose the character You can delete the lollipop duplicate. Select all the bee parts and the original lollipop. Under Transpose Master choose TposeMesh. Mask the lollipop and place the bee on it. The bee's tongue will be glued to the lollipop, so pose the body as if the bee is trying to release itself by pulling its head up. Unmask the upper body and rotate up, then the head and rotate it right. Unmask the mouth and rotate it left as if it's being pulled.

Rotate the arms and legs to counter balance the pulling action. Under Transpose Master choose Tpose>SubT to transfer the changes to the final model Ⓜ.

GoZ back and forth

GoZ creates a bridge between ZBrush and 3ds Max. Polygon selection tools are superior in 3ds Max, use them to assign Material IDs that will be interpreted as polygroups in ZBrush.

On the other hand, ZBrush is better at reshaping organic forms. Export geometry, reshape and send it back to 3ds Max. Take advantage of the best in each software.

Ⓛ The body and wings require UVs, the legs and antenna won't

Ⓜ Pose the bee as if it's glued to the lollipop

14 Focus on the bee's features Create a ZSphere at the mouth and extend to create the tongue base. Click Make Adaptive Skin, subdivide and shape with the Move brush. Sculpt the tongue with the Clay Buildup brush. To create UVs, start by deleting lower-level subdivision and press GoZ. In 3ds Max, apply UnwrapUVW, select edges indicated on the image as seams and use Peel mode to unfold UVs. Press GoZ to update ZBrush model UVs. Create a surface texture using the Standard brush in Drag Rect mode using the LeatherySkin15 Alpha (in Lightbox) and dragging onto the surface. Use the Dam Standard brush for wrinkles on the tongue and face (around eyes and lips). Mark nostrils and connection with antenna with the Clay Buildup brush Ⓝ.

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Final details

Finalise and export for the next phase

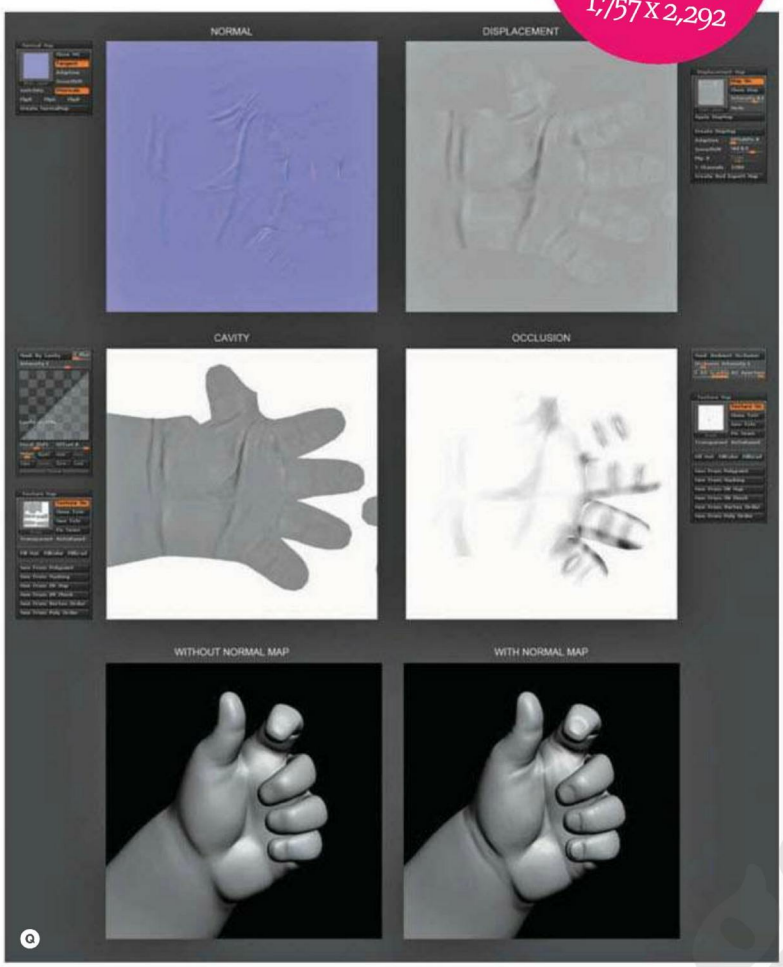
1 minute render time
Resolution: 1,757 x 2,292

15 Adjust the lollipop Select the lollipop cylinder, set Ctolerance (Crease Tolerance) to 41 and press Crease. This will prevent the cylinder's edges from smoothing. Subdivide twice then Press Shift and Uncrease All. Subdivide three more times and, using the Clay Buildup brush, mark the lollipop spirals by stroking lightly to produce an irregular surface. With the Dam Standard brush mark the frontier between the two spiral colours.

With the Clay Buildup brush, sculpt around the tongue as if the surface had been licked. Also add volume around all body parts that touch the lollipop surface O.

16 Export to 3ds Max The model has ten million polygons. To export a lighter model to 3ds Max, choose the adequate subdivision level for each subtool as indicated in the image. Set this subdivision level and press DelLower to delete lower subdivisions. We have to do this because ZBrush will always export to 3ds Max with the lowest subdivision level through GoZ.

Most subtools will be exported at subdivision level 3. However, I chose to export the lollipop at its maximum level to keep all the contact details with the bee. Near GoZ button press All to export all subtools to 3ds Max. The exported model has about 475 thousand polygons P.



17 Export the maps We will export normal maps for all subtools that have UVs to use later in materials. Also export cavity, occlusion and displacement maps to help in creation of textures on next chapter.

To export normal map, go to lowest subdivision. Under NormalMap disable SmoothUV, press Create NormalMap. Press CloneNM and under the Texture menu choose map and press Export to save it. To export displacement map at the lowest subdivision, under Displacement Map press Create DispMap. Press CloneDisp, go to the Alpha menu, select Map and Export. For cavity and occlusion, set the highest subdivision and under Masking press Mask Ambient Occlusion or Mask by Cavity. For cavity set Focal Shift to 0 and Intensity to 1. For occlusion, set AO ScanDist to 1. Under Texture Map, choose New from Masking. Clone Txtr and export it (Texture menu). Everything is set to start next phase Q.

Extra maps for more quality

Occlusion, cavity and displacement maps can be easily extracted in ZBrush. I create these maps because they work very well as a base to create other maps (like specular, glossiness or bump) and also to add extra information to colour maps. Use the occlusion map on top of your colour map using a Multiply or Linear Burn blending mode for a dirt effect. Cavity and displacement maps also work really well using the Overlay blending mode to provide extra visual detail and reinforce the normal map's effect.

N Add texture to the tongue by using Drag Rect mode and Alphas

O Sculpting the connections between bee and lollipop will add to the image's story

P Subdivision level of each subtool for exporting

Q At the bottom you can see all the additional detail that the normal map has provided

I made this...

Incredible 3D artists take us behind their artwork

Artist info

Tim Jones
3DArtistonline

Website www.seraph3d.com
Country USA
Software used 3ds Max, Mudbox, V-Ray, MARI, NUKE, UVLayout

> The scene was lit with a single HDR and a V-Ray dome light. Because a photographed HDR cannot capture the full intensity of the sun, I gained the RGB pixels of the sun in my HDR up in NUKE until it matched the correct intensity for the sun

Lavoir 2012

Several years ago I came across a book that had some imagery of lavoirs in France. I really liked the architecture and the romanticised idea of people in a community gathering at their town's lavoir to clean their laundry – and themselves. The idea to create a rendering of a lavoir has stuck with me ever since.

> Every architectural object in the scene was sculpted on in Mudbox to add fine details and then displacement maps were generated for rendering in V-Ray. No bump or normal maps were used. It requires more memory and renders slower, but there is just no beating the quality of having all the fine details actually in the model itself

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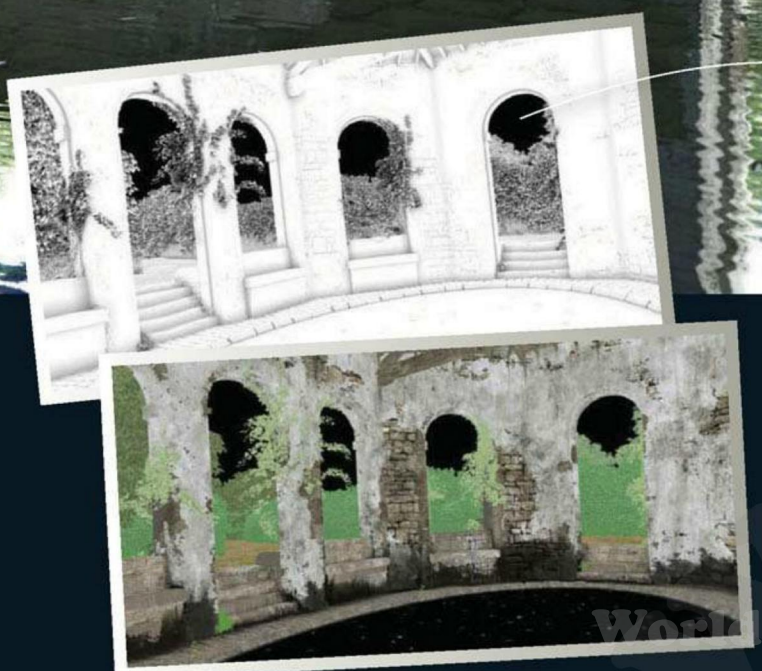
> The wall texture map needed to be extremely high-res and have no visible seams. In the end the texture maps could have been even higher resolution. Next time I will make better use of MARI and have multiple UV tiles to get the highest resolution possible out of my maps

Software used in this piece

3ds Max | Mudbox | V-Ray | MARI | NUKE | UVLayout



> Everything was composited in NUKE using 16-bit float EXRs from V-Ray. Compositing in float really helps get realistic results from your glows and light wraps. In this case it was also helpful in reproducing the blue fringing around the areas of highest contrast that you often see in photographs

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Software used in this piece

modo

Photoshop

Concept design
Texturing

Scott's first technique uses Photoshop image maps to project materials for transparent effects

The second technique shows how photographic images can be projected onto your mesh

On the Disc

Custom brushes courtesy *Advanced Photoshop* magazine

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Mech suit design

R-MUHR suits 2012

> This type of image is used to explore graphic variations and photoreal material combinations of a conceptual design, in order to spark an idea or desired aesthetic to be refined later

Scott Robertson owns and operates the publishing company Design Studio Press, develops intellectual properties, writes books and teaches workshops on design and rendering

In this tutorial I'm going to share some texture-replicating techniques, also known as 'texture bombing', in modo 601.

You can use these techniques to explore a wide variety of styling variations of a surface, with an emphasis on graphic design. In addition, you can also create a wealth of design variations, with a focus on material combinations through traditional texture-projecting techniques. These more traditional image-projection techniques are nothing inherently unique to a specific program, but where these methods are innovative and productive is with the application of rather odd image maps. Through projection experimentation, these can provide you with aesthetic variations that any of us would struggle to create with traditional 2D techniques. This is especially true if you are interested in exploring more translucent materials. A large additional bonus to the texture bombing feature – now shipping in modo 601 – is the fact that you don't have to set up any UVs when applying a texture image.

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Scott Robertson

Personal portfolio site
www.drawthrough.com

Country United States

Software used
modo, Photoshop

Expertise My 3D work supports my concept design process. I use modo to block out forms, enabling me to quickly explore the proportion, graphics, material and colour of anything 3D. I enjoy experimenting with digital tools to find new ways to aid in the creation of new designs and imagery

Photoshop image maps

Technique 1: Create foundations for cross-platform textures

01 Photoshop image maps Many seasoned artists have collected a lot of custom brushes they've created over the years in Photoshop. By randomly filling an image and saving it out as a PNG file you can use them as image maps. It's a good idea to have one master PSD file with multiple layers, where you can easily save out variations of your image maps after you see how they land on your mesh. It's also nice to be able to adjust the levels of a layer in order to create other maps for stencilling meshes and controlling the Transparency settings of materials Ⓐ.

02 Image projection Load your image map into the material you have assigned to your mesh. Explore the various projection types and be sure to play around with the X, Y, Z positioning of the image as well. There is no right or wrong way to do this, just use trial and error to see what you get Ⓑ.

Concept

These are all sci-fi suit concepts I've been developing for a potential Design Studio Press book titled, *R-MUHR*. It will be a collection of sci-fi suits mostly completed using similar techniques.

Ⓐ This map is based on the proportions of half of the front view of the suit mesh. It ended up being used for a top-down projection rather than a frontal

Ⓑ Notice the image map has been duplicated a few times to set it to some of the other effects, such as Bump, Stencil and Transparent Amount

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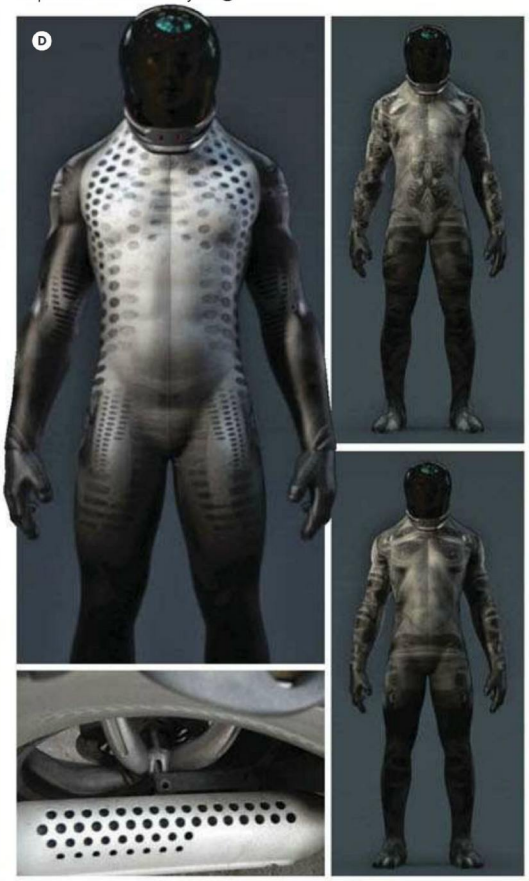
Using photographic material

Technique 2: Use texture replicators to project images onto your mesh

01 Map types Duplicate your original image map and change its type to something different. The default import type will be set to Diffuse colour. The next most obvious type to try will be Bump, where modo looks at the greyscale values of your image map to indicate small dimensional variations. This works well for embossed and engraved design lines across a monochromatic material C.

02 Control the chaos In the Particle Source dropdown menu, pick your mesh as the source for texture bombing. This will take your image and project it at every vertex. You can also start to add randomisation to the way the image is mapping across the mesh by adjusting the numerical values. You can opt to use Particle Size, Random Size, Rotation and Random Rotation the most. The *Scooter Muffler* photo was used here as it was, no cropping or softening of the edges. That's what the Texture Replicator handles for you D.



Symmetrical Texture Replicators

Setting up your mesh for symmetrical texture bombing is accomplished by mirroring an instance of the original mesh to the opposite side. This will give you the mirrored graphics, which are most common to the functional aspects of something like this suit design. You will have to address the visible centre line in your rendering by doing a little post cleaning in Photoshop if you don't want it there. Keep in mind that these types of renderings, even though photoreal-looking, are more of a sketch as far as time is concerned, and are used to find new design directions. That's also why it's not important to do an asymmetrical pose that would be a little more compositionally dynamic.

Artist Showcase

Scott Robertson

In addition to founding and running Design Studio Press, Scott crafted the Art Center College of Design's Entertainment Design curriculum and is the former chair of the department. He has authored and co-authored nine books on concept design/art, and nine educational DVDs featuring his professional drawing and rendering techniques.

Bot Charge **Photoshop CS5 (2011)**
This is a quick colour sketch of a bot charging through the sand. I took a picture of a dinosaur skeleton and then painted directly of top of my photograph

Red Sled **modo 501, Photoshop CS5 (2011)**
The background and vehicle were created in modo, then I went out and took a picture of some girders to lens blur and use for the foreground element

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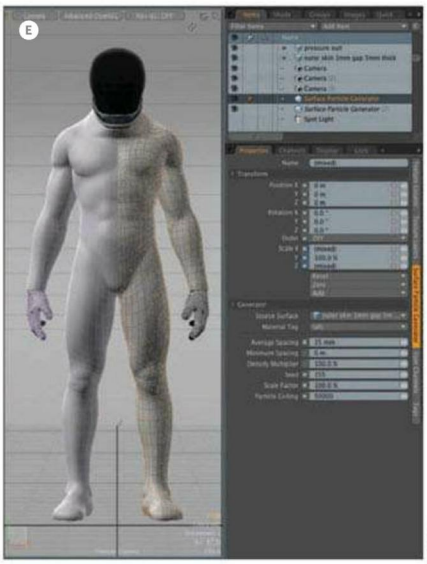
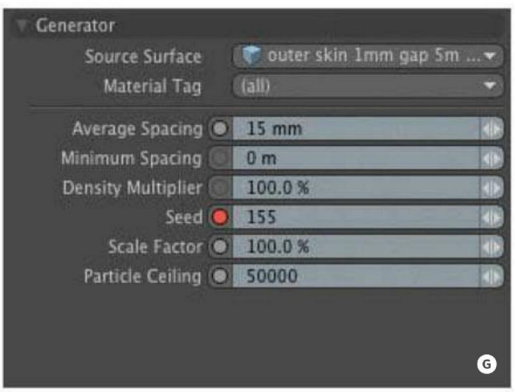
Experiment with particles

Technique 3: Push numerical settings to learn the limits

01 Surface Particle Generator If the surface you are trying to bomb has very simple or overly complex geometry, and the mapping of the image to each vertex is not giving you the desired results, then you might want to add a Surface Particle Generator in the Items list. This works like a traditional 3D Replicator from previous versions of modo but it scatters particles across your surface instead of meshes. Set your Source Surface to the base mesh you want to texture bomb E.



02 Reset the Particle Source Go back to your Texture Replicator menu and set the Particle Source to the newly created Surface Particle Generator. Now modo will place a stamp of the image map at each particle F.



03 Generator controls The nice thing about using the Surface Particle Generator is that it enables you to have more control over the placement and density of your particles. Most importantly it has a Seed number you can change to instantly create happy accidents with your texture bombing G.

04 Take your suit to rendering Using one of the 9b SES1 indoor-studio presets made by 9b Studios or a default modo HDR environment is advised. Also, using a 100mm lens to limit distortion a bit. When doing these kinds of controlled chaos renderings it's hard to predict what's going to work well for an image map and what's not. So dare to make mistakes. Some of the best results can come from image maps that seem to be resulting in total failure. The point is that these types of renderings are so fast to do it's worth the test, especially when you set up a sequence of images to render overnight H.

The power of materials

One of the most fun things about this process is that it has now liberated a part of the design process that was too labour-intensive to explore using only 2D techniques in Photoshop. Also, by having the material driven by Bump and stencil maps to create cutout parts of the suit and surface design lines, the complex modelling of these types of features can be skipped altogether at this stage. When you find a design direction you like, then you can go back and refine your mesh to reflect the design you discovered by experimentation with the materials. A special thanks goes to Neville Page for use of the male figure mesh he sculpted in ZBrush that was used for these renderings.

***Powerslide* modo 501, Photoshop CS5 (2010)**
I made this piece for my book *DRIVE*. This was the first time I made extensive use of the stencil effect with a material. The tunnel is made from two cylindrical meshes with a Stencil map

C The coolest thing about this method of rendering is that the base model is simple and fast to do. The cut lines and complexity comes from the material not the mesh. In these detail shots I have layered two copies of the base mesh on top of each other, with some space between them

D Try setting different values for different frames of an animation sequence to render overnight. I usually render out five to eight variations – three of those are shown here

E Use the Average Spacing to vary the distance between the particles and the Particle Ceiling to limit the total amount

F Experimentation is essential with projects of this type. You'll be surprised by just how much the smallest variations can yield interesting results

G Notice I have the seed number keyed (the red dot) so that I can record new seed numbers for each frame of the animation sequence. When you render the animation set it to Image Sequence then each frame will be saved out as an image as they are rendered

H This suit has two meshes: the base is a mesh I've bevelled and expanded all the polygons on, and added a black-and-white Diffuse map to. The outer one is set to render with the Enhanced modo>Fabric>Nets 01 material

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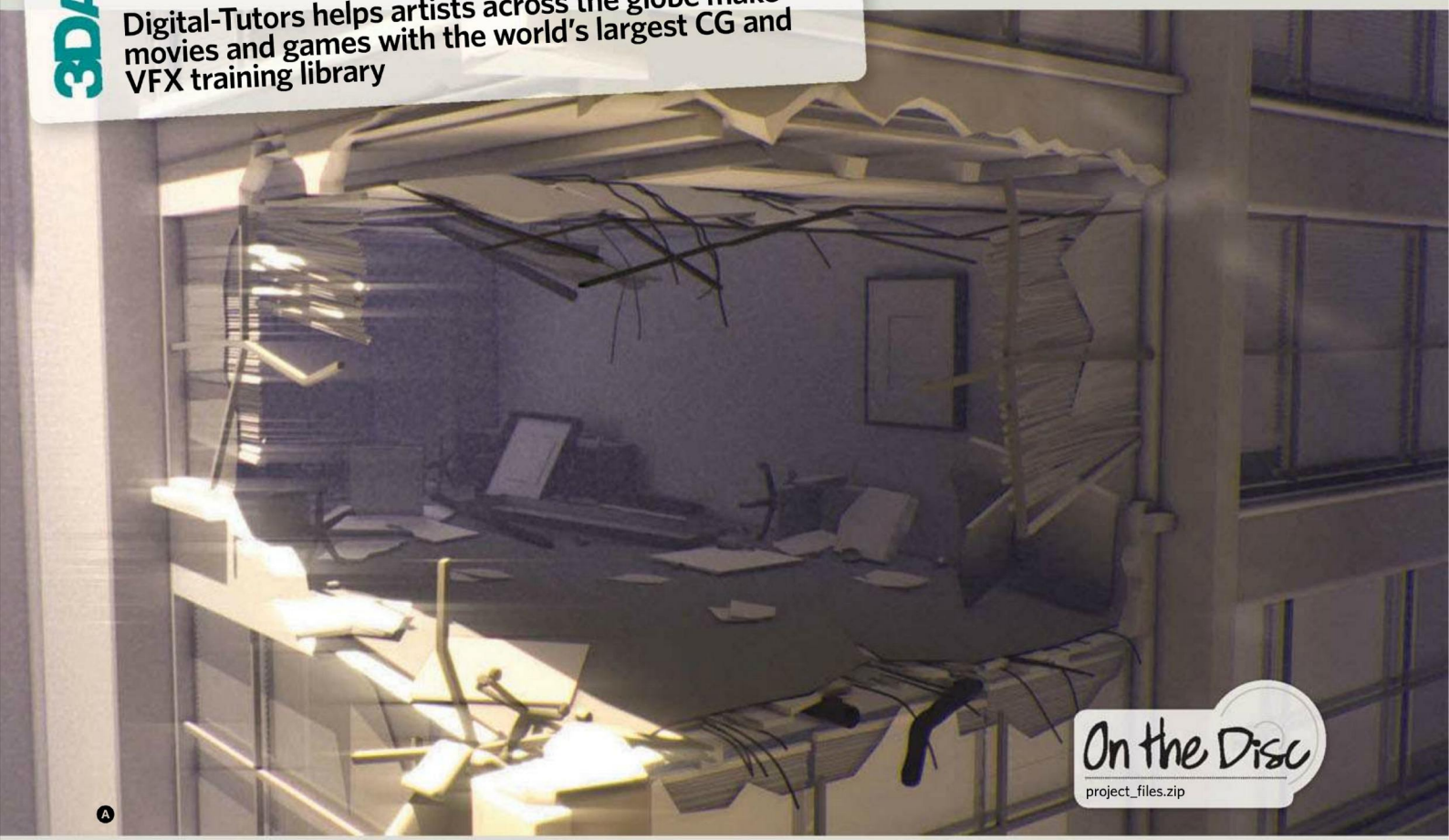

On the Disc

project_files.zip

A

Model architectural destruction in Maya

Digital-Tutors takes an in-depth look at tips and techniques for modelling realistic architectural destruction

As modellers and artists we often think of ourselves as creators, not destroyers. But watch any summer blockbuster or play a popular videogame and something is always getting blown up. Giant robots bash into skyscrapers and alien attacks leave paths of destruction in their wake. Much of the environment work on these projects is done in CG, so the need for creating realistically damaged and destroyed models is immense.

Creating destruction adds a completely different level of complexity to our models. Think about creating a building in 3D. In its simplest form, the building could be something close to a basic cube mapped with photographic textures, and it may hold up fine in most shots. When that same building starts getting blown up or torn apart, the cube suddenly doesn't serve its purpose so well any more. Instead of a solid piece of geometry, viewers rightfully expect to see the different parts of the building reacting realistically to the levels of stress they are under.

Thinking about the real-world materials, which the different parts of our models are ostensibly made from, is key to creating realistic destruction. Steel beams will bend and break totally differently than wood flooring, glass windows or concrete blocks. For the kind of project we're covering here, the way our models react to stress doesn't have to be completely physically accurate, but obviously the closer you can get the more realistic they will look in the outcome. At this point the internal structure of the models also becomes very important. After a building is torn apart the viewer will expect to see the inner studs, wires, pipes and cables hanging out.

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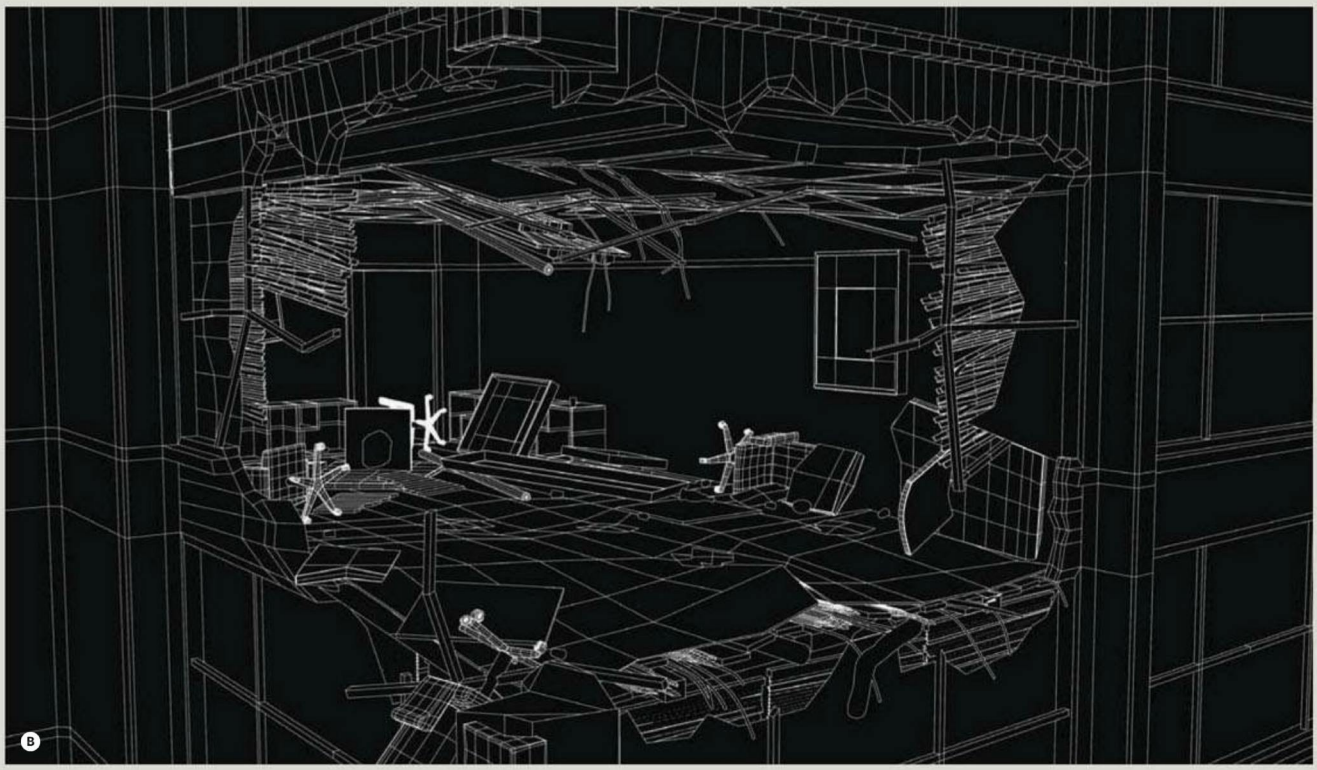


B

Try DynaMesh to create damage

In ZBrush, DynaMesh can be a great option for breaking models apart. To quickly break a concrete block into multiple solid pieces, load it into ZBrush and activate DynaMesh with the Groups option turned on. Now cut the block apart using the SliceCurve brush and remesh by Cmd/Ctrl-dragging in the canvas. You can then move or rotate the pieces away or separate them into different subtools by choosing Groups Split in the SubTool palette.

Working with polygon models makes creating destroyed states easier, especially if the polygons will not require any smoothing or subdivision. You will be able to modify the models quicker, keep sharp edges readily and not have to worry as much about keeping everything in quads. If your models will be subdivided, much more care will need to be taken at the break points. Creasing can help, but in many cases you have to add more resolution to retain that sharp break.

When creating destroyed models and sets, just as with any project, thinking ahead can save you a lot of time down the road. As you build up the initial model, try to get as much information as you can about how it will eventually be broken apart. You may not be able to get too specific, but you can at least try to build the initial models in such a way that cutting them apart won't be as difficult. Creating UVs beforehand will enable you to tweak those of the destroyed model, so some existing textures can be reused. While added faces will need to be remapped, merely splitting edges won't affect the UV layout for the most part.

The actual destruction animation is often accomplished through complex simulations. Other times the destruction or decay is simply part of the existing landscape and just needs to be modelled like any other environment. In any case, you can use dynamics in Maya to assist in building rubble or debris. You can break apart your existing geometry, or create pieces of rubble from scratch. Turn these pieces into rigid bodies, apply gravity and set your collision objects, the ground and larger pieces of rubble. You can then simulate the debris falling into a realistic pile and use that as a starting point for further modelling. Remember to match the overall volume of the rubble with that of the destroyed portion of your building.

Set dressing also plays a large role in modelling realistic destruction. The context of the destruction within the story will often help drive the set dressing. Has the set been abandoned? For how long? Was the set destroyed by an explosion? Where did the blast originate? If you're working from concept art, most of these decisions have been made for you. If not, they're important considerations when you're placing props into your destroyed environment. Computers are great at creating order, so it can be a lot of work to make a CG model look realistically chaotic, but the result will really be worth the effort.

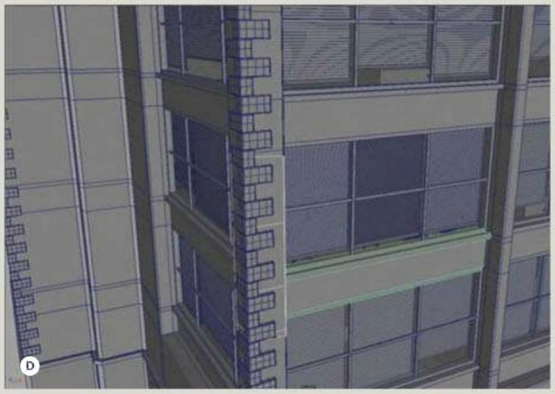
A Making a destruction scene may look easy, but there is a large amount of hidden intricacy

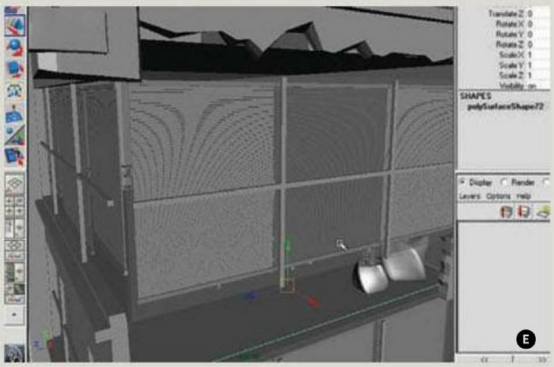
B Using details where we need them will make the entire scene seem finished

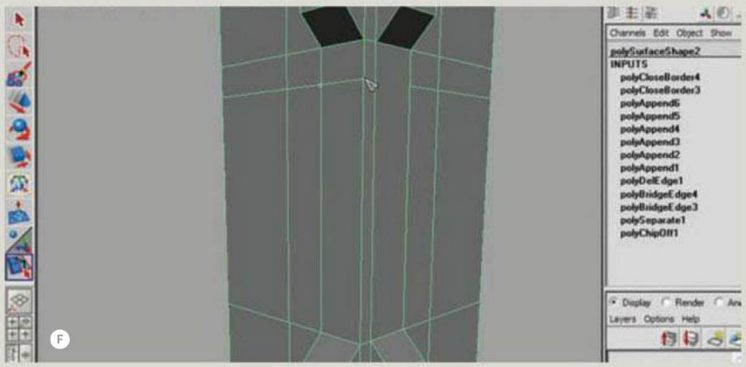
In addition to overall 3D programs like Maya, sculpting applications like ZBrush and Mudbox offer valuable tools for assisting in the destruction process. Sculpting layers in Mudbox enables artists to make several layers of surface detail, on a wall for example, and then chip away bits of the layer to show the surface on the layer below. This can be done non-destructively, allowing for a very forgiving and flexible workflow. Tools like DynaMesh and NoiseMaker in ZBrush can enable artists to very quickly cut models into solid pieces and add procedural or texture-based noise to your surfaces.

Being able to create realistic sets and environments is an important skill for a modeller. Part of creating that realism is modelling sets that look lived-in, used, or, in this case, damaged and destroyed. Whether you are creating a destroyed cityscape from scratch, or modelling the damaged state of an existing model, taking these concepts into account will speed up your workflow and create realistic results.

Look for additional video training on modelling architectural destruction supplied with this issue and on the Digital-Tutors site.







Model architectural destruction in Maya

01 Concept the destruction

Destroying your models can seem like a great way to release some frustration, especially after a challenging day, but creating a realistically destroyed set is often even more difficult and time-consuming than building the initial model. So it's a good idea to have some kind of game plan and concept art of the destroyed model is ideal. Short of that, reference images will help. Think about the cause of the destruction, such as decay from age, a natural disaster, a bomb or an aerial assault. Then look for appropriate reference images to get a better idea of what that kind of destruction typically looks like C.

02 Think ahead

If you're creating the initial model yourself, try to get as much information about what kinds of changes will eventually need to be made to the model. This will enable you to spend a little more time on the initial creation in order to make your (or someone else's) life easier when it's time to create the damaged state. You can make sure there is sufficient resolution for creating damage and place edges in areas that will make cutting the model apart much easier. You can also create elements of the model that you know will need to be seen later D.

C References can give you some great ideas for destroyed sets

D Information about the destruction phase can assist in the initial modelling stage

E Isolating the destroyed area will enable the rest of the geometry to remain in a low resolution

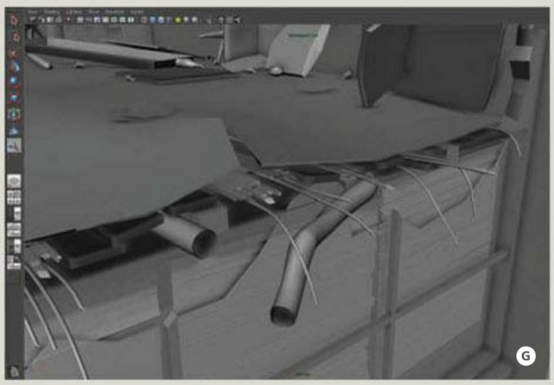
F Use Fill Hole to close gaps and complete the edge loops by using the Split Polygon tool

03 Isolate the destruction

Once you have an idea of the destruction you want to aim for, you can begin to isolate the destroyed geometry and cut it apart if needed. Working with polygons will give you a lot of freedom in how you split the geometry, but keep in mind that if your models will be subdivided, there will be more work involved in making sure the model is clean E.

04 Complete all the destroyed pieces

Once you have cut your set into pieces, the fact that the geometry is hollow will become a problem. You can use Fill Hole or Bridge to fill in the missing geometry. Then the Split Polygon tool will enable you to manually complete the edge loops across the new faces. If the models can remain as they are, sharp edges will be easy to maintain. If you are smoothing or subdividing them, you will need to use creasing or add more edge loops to keep the sharpness we're aiming for F.



05 Build interior structures

Typically when modelling buildings or other structures, we don't have to think about the inside. We can create walls, floors and ceilings, and all we care about is if the outer surface looks good. However, when destroying that building suddenly the detail, or lack thereof, inside the walls or below the floor is visible. So creating at least a simple inner structure will add a great deal of realism. The detail could be simple studs in the walls, metal tracks above the ceiling tiles, clusters of pipes or wiring G.

06 Bend, don't break

When you are distressing or destroying your models, it's very important to think about what each one is supposed to be made of. If you are destroying metal pipes, it might make more sense for them to be bent and twisted, rather than snapped in two. On the other hand, when destroying wooden planks, you'll want to create jagged breaks and splits. Concrete, metal, plastic, fabric and brick will all respond to stress in different ways and it's vital to reflect that difference in your models H.

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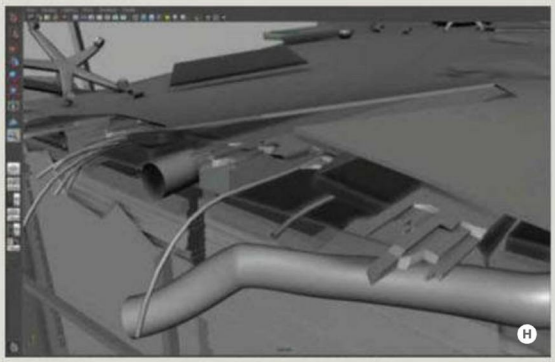

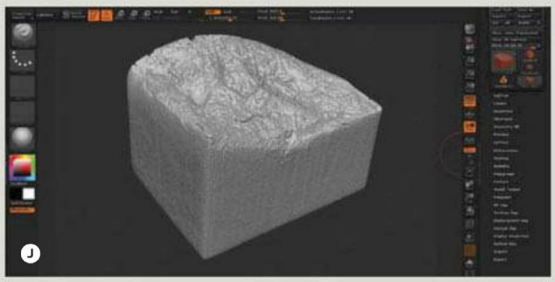

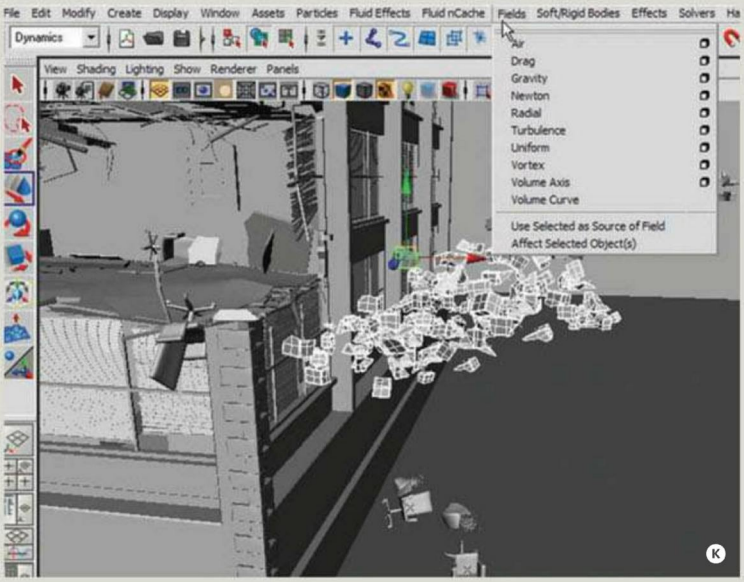

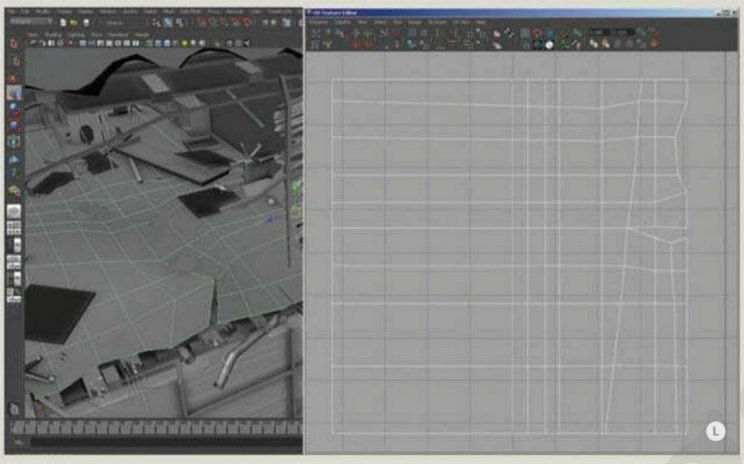

G Adding pipes and wires can give the impression of an inner structure

H Having pieces react differently to stress will add a lot of realism to the set

I These props were spread out from a central explosion under the table

J Interior detail of broken pieces can be made in ZBrush or Mudbox software

K Mimicking pieces of debris can create realistic piles for good starting points

L Having a good initial UV layout may keep you from re-creating texture work

07 Dress the destroyed set

The arrangement and placement of the elements of the destroyed set goes a long way in creating a realistic look. Taking into account the type of destruction, you can begin taking the existing props and placing them into their new configuration. Creating this sort of random look is actually very deliberate and a lot of thought can go into it. If the destruction is caused by a bomb, you can think about the direction of the blast. If something has collapsed, you can imagine the force of gravity and friction acting on the parts of your scene I.

08 Detail the damage

Sculpting applications can be a valuable part of the workflow when destroying models. Once the geometry is broken apart, the detail that you would expect to see is typically more than realistically possible with traditional modelling methods. When creating the interior of a broken concrete block or splintered board, for example, ZBrush or Mudbox can be used to sculpt the required detail. You can then choose to either export new geometry or a map that can be used to re-create the effect in Maya J.

09 Use dynamics to arrange your debris effectively

One of the most intimidating aspects of modelling destruction can be the resulting debris. Placing each piece of debris manually and creating large piles from scratch can be very tedious and time-consuming. To achieve a good starting point, try using rigid-body dynamics to drop a large group of debris models to the ground. You can get a fairly realistic look with a large number of models that can then be manually adjusted to get a good final result. It also can't hurt to refer to some images of collapsed buildings again, in order to get inspiration K.

10 Keep all your UVs

When modifying an existing model to create a destroyed state, it's a good idea to think about the UVs and textures. Try to create a good UV layout for the intact version of the model. Clean textures can be created based on those UVs. Then as you destroy the model, keep as much of the existing UV layout as you can. In this way the existing textures can be used as a starting point and any changes required to re-create the destroyed state are minimised, speeding up the workflow L.

Sculpt multiple damaged surfaces

There are a number of brushes and tools that make sculpting damaged surfaces easier in ZBrush. The Clipping and Planar brushes enable the creation of sharp cuts and flat, broken planes. The rough interior of broken surfaces can be detailed via the Noise function (Tool>Surface>Noise). This can be added and modified before being applied to the mesh and alphas can even be used to drive the noise to get the precise look you require.

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The advisors

DAZ Studio
Adam Martinakis
http://adamakis.blogspot.com

Adam Martinakis is a 3D artist based in Athens, Greece. He has been working on digital arts since 2000 and has won three global art competitions.

3ds Max, V-Ray
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Paul works for design studio CADS 3D, based on the east coast of England, which has a strong background in 3D visualisations, architectural design and animations.

On the Disc
Find Victoria and Michael V5 models, complete with various morphs, poses and textures

DAZ 3D

Create better images

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How can I avoid clichés and create a convincing illustration using the Michael and Victoria DAZ presets?

In this tutorial we will be using the new Michael and Victoria DAZ 3D models for creating an artistic 3D illustration. There are many ways to approach using the human body in a composition, depending on the intended effect. It's important to realise that experimenting with the models and their textures can offer fantastic results.

Our objective will be to use beautiful models of the human body (male and female) in a free, creative way while avoiding techniques that have been used before. The idea is to produce a black-and-white composition where the background consists of many concentric circles with irregularly fragmented bodies placed around the centre. The bodies will have a kind of fetal position, giving the feeling that they rotate (or float) around the centre.

It will be important to spend some time in DAZ Studio with Michael and Victoria models, so that the bodies of the models have a proper position for our needs. After finishing in DAZ, we will export the models to 3ds Max.

Next we will fragment the models into many pieces using the RayFire fragmenter modifier (http://rayfirestudios.com), but you can use a fragmenter of your choice. We will assign simple black-and-white materials to the fragmented pieces and the free BerconWood map (www.ylilammi.com/BerconMaps.shtml) for the background. For the light setup and the rendering we will be using V-Ray (www.chaosgroup.com/en/2/vray.html).

We will practise with the positioning of the models in the scene so that their lines somehow follow the direction of the circles. This will give the feeling that they are part of, or created by them. The whole approach of this technique will offer a stylistic, semi-abstract composition.

01 Create interesting poses

Import the Victoria model into your scene and choose the pose Female reclining 01 (or 02) from the Content Library. Selecting the parts of the body one by one, move and rotate properly to the direction you

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Maya
Jahirul Amin
www.warpeaceandpixels.com

A lecturer in computer animation at Bournemouth Uni, he comes from a generalist background but admits a "geeky passion for rigging".

Unity
Roald Høyer-Hansen
www.rockandroald.net

Roald considers himself an all-round 3D artist, having worked with concept art, modelling, texturing and animation. He has a big interest in game design.

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need to form the orientation that is close to the fetal position. You can also use the Pose & Animate tab on the right as well as the Bend, Twist and Side-Side options A.

02 Export the model

When the position of the body is ready, export it in a .obj format (File>Export>. obj). In 3ds Max Import Options, choose the DAZ preset, uncheck all the parts of the body that will not be needed (mouth, tongue, teeth) for making the model lighter. Alternatively, we can import all the body parts and delete the unnecessary ones in the element option. Also uncheck the material option and choose Import as Editable Poly and Single Mesh B.

03 Fragment the bodies

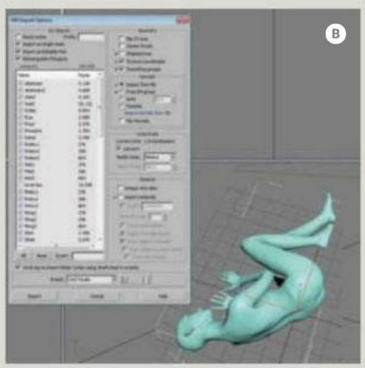
Use the ProOptimizer modifier with Vertex set at 50% and convert to editable poly, so that the model will be lighter for the fragmentation. Choose the RayFire fragmenter modifier with Point Cloud Generation at Random and Count at 150. Last, set the Crack Width to around 0.1cm so there is a slightly visible distance between the fragments C.

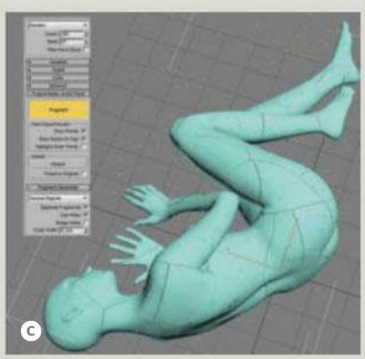
04 Body composition

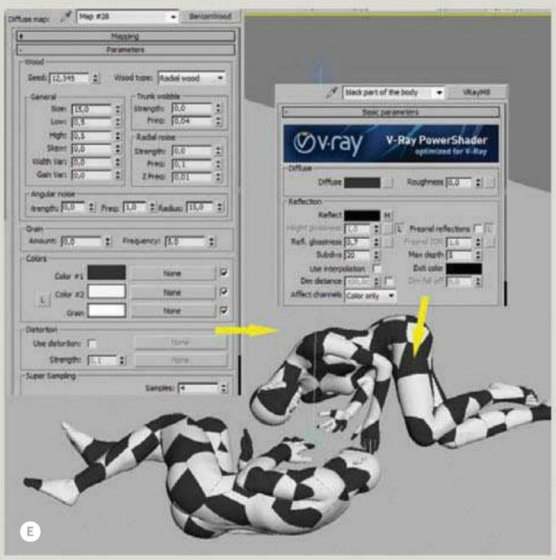
Place the models in the centre of a plane that will act as a base and background. The two bodies should have an opposite direction and be looking at each other. Leave a distance between them and imagine that the centre of this distance will be the centre of the circled background. Create a VRayPhysicalCamera on top and place it looking towards the centre D.

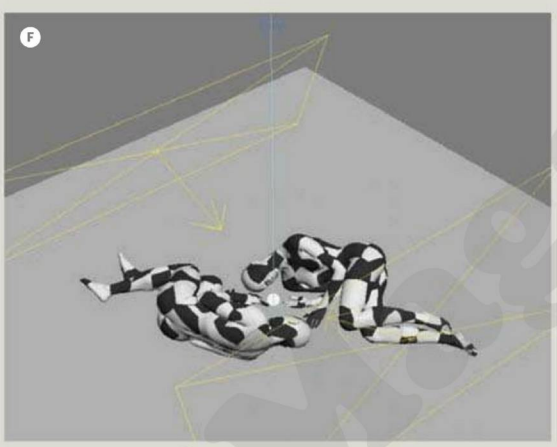
05 Create materials

For the background material, choose a VrayMlt and assign to diffuse a BerconWood map with the following setup: Radial wood, Size 15, Low and High 0.5 and set all the other elements to 0 (Skew, Width and Gain Var, Trunk wobble, Radial and Angular noise and Grain), Color #1 black and Color #2 white. For the models, create two simple black-and-white materials with a Reflection map at 35% (metal or concrete) and Refl. glossiness at 0.7. Assign in Element mode piece by piece E.









06 Lights and rendering

For the light setup, create two VrayLights (planes) in opposite directions (Multiplier 1.2 – half-length 120cm, half-width 40cm). In the centre of the background, and between the two models, create a GeoSphere (radius 3.5 cm) 35cm above the base and assign a VrayLightMtl (one Multiplier, Direct Illumination on). For rendering, use the Irradiance map and Light Cache option. Use a VrayPhysicalCamera, f-number at 1 and Shutter Speed at 200 F.

Avoid problems

The most difficult part of this tutorial is the fragmentation. The DAZ models are very detailed and can be heavy for fragmentation, but this depends also on the system that you own. The more RAM and the faster processors you have, the better. If your system allows it, you can raise the Count of the pieces to 250, which will result in better and more detailed fragmentation. If you have problems during the process, try to detach only the body and the eyes of the models and keep this as your main body model.

3DArtist

Questions & answers

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3ds Max, V-Ray

Texture baking

How can I create realistic lighting in games and interactive presentations?

Texture baking is something I studied several years ago at university. We had created a character in 3ds Max and needed to import it into a game environment. This meant it required realistic textures with Global Illumination and Reflections. Programming these properties into the game engine would have been possible but not ideal, due to time and complexity. Instead we turned to the trusty texture baking method.

Texture baking can also be referred to as rendering to texture, it enables you to create texture maps based on an object's appearance in the rendered scene. The texture that is created is then mapped onto an object and can be used to display the textured object rapidly, in a range of different interactive environments and game engines.

Now let's look at a rendered example. If you were to render a wine glass using your favourite renderer, it would obviously be reflective, refractive and include the shadows of any objects surrounding it that are blocking light sources. All of these things are calculated by the renderer and are then displayed on the screen. The texture baking process takes all these realistic properties of your object and bakes them into a 2D image. It then applies them back onto the object. This would be similar to taking a photo of a wooden surface, because you would find the photo would have all the reflections already baked into it.

Let's get a bit more practical. You can texture bake using a variety of renderers including mental ray, which ships with 3ds Max or V-Ray, which we will be using for this example.

The process for us will be split up into two main sections. The first will be to unwrap the object. This process is required because we need to flatten the faces of the object so that each face is assigned a portion of the final baked image. Without the object being unwrapped, 3ds Max would not know how to split up the faces and produce the baked image.

The second will be to carry out the actual texture baking and to create the final baked image. This is a fairly straightforward process in essence, but there are also some extra features that will unfortunately be beyond the scope of this brief explanation.

With all that being said, I would advise making your first example very simple. Maybe even just a box sitting on a plane with one light illuminating it.

01 The Unwrap modifier

Before we do anything else, our first step is to add an Unwrap modifier to our object. Do this by selecting your object, go to the Modifier drop-down menu and select the

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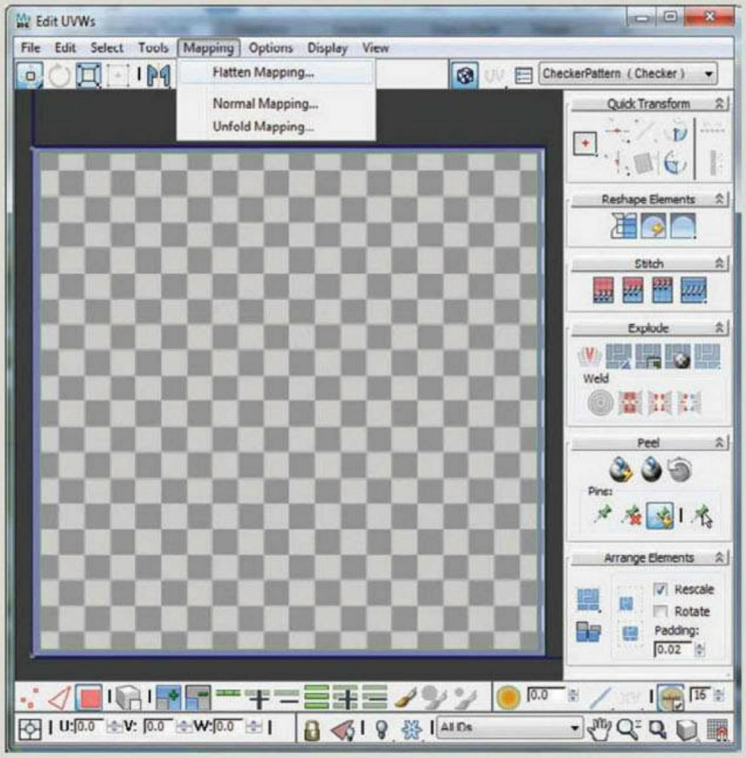
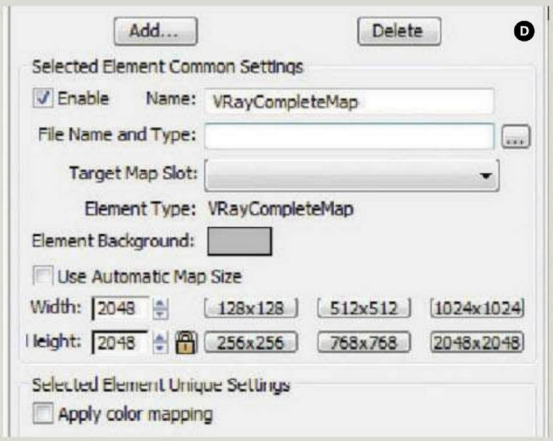
C



What is this good for?

Texture baking is obviously very useful for creating real-time gaming environments. However, in our studio there unfortunately isn't much requirement for zombie-filled shoot-'em-ups. Instead we make use of texture baking to build interactive architectural and product visualisation environments. We create the 3D model, apply the textures, set up the lighting, texture bake the scene and then output to our interactive simulator. This gives the client the freedom to walk round the environment at their own leisure, providing a more immersive and interactive experience.



D

Unwrap UVW modifier. This will be added to the top of your stack. In case you didn't know, the UVW stands for the three co-ordinates that we will be using for the unwrapping. Essentially it relates to the XYZ co-ordinate system but these letters are used instead A.

02 Organise your faces

Now that you've added the Unwrap modifier, it's time to edit your model's UV co-ordinates. Head to the Edit UVs section of the modifier and click the Open UV Editor button. This brings up a window that displays all of the UV information for your object. At first this may seem daunting, but in the next step we'll take you through the process of sorting through all this information B.

03 Flatten mapping

With the modifier still selected, go to the face selection, hit Cmd/Ctrl+A to select all and then inside the UV Mapping window go to Mapping>Flatten Mapping. This will bring up a window with some settings but you can opt to leave all of these at default and the program does a pretty good job. By clicking OK, 3ds Max will automatically flatten each face and organise them so that no overlapping will occur C.

04 Render to Texture dialog

To bring up the dialog box, go to Rendering on the top bar and then select Render to Texture. Scroll down a little bit, go to Add and select VRayCompleteMap. This will take all of the reflection and refraction and bake it into one map. Set the width/height of the resulting map and then we're ready to roll. For a more comprehensive overview of the settings you can check out the texture baking tutorial on www.spot3d.com D.

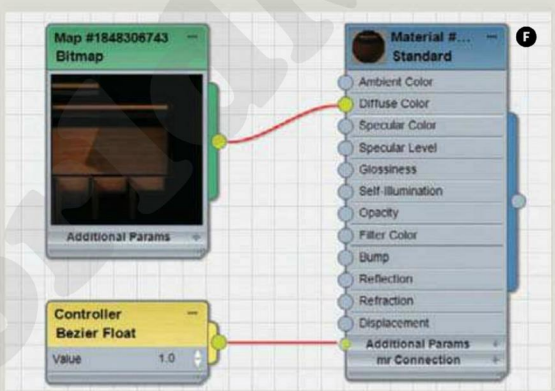
05 Bake the texture

For this stage you need to hit the Render button right at the bottom of the viewport. This will show you a flat view of the texture that is being baked and you'll notice that your shadows are gradually being baked in. Once this is complete, save the image to wherever you want and it's ready to use back in our scene. You could automatically save the baked images using the Render to Texture dialog box, but this isn't necessary at this stage E.

E

06 Reapply the texture

We now need to make use of the texture we have already baked. Do this by loading it into the Material Editor and applying it to the object that you have just baked. All the mapping should still line up correctly. We apply the image to a standard material because that's what your interactive software takes as an input. By doing this to your whole scene you can eliminate the requirement for lights and calculations that are often long and complex F.



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3DArtist Questions & answers

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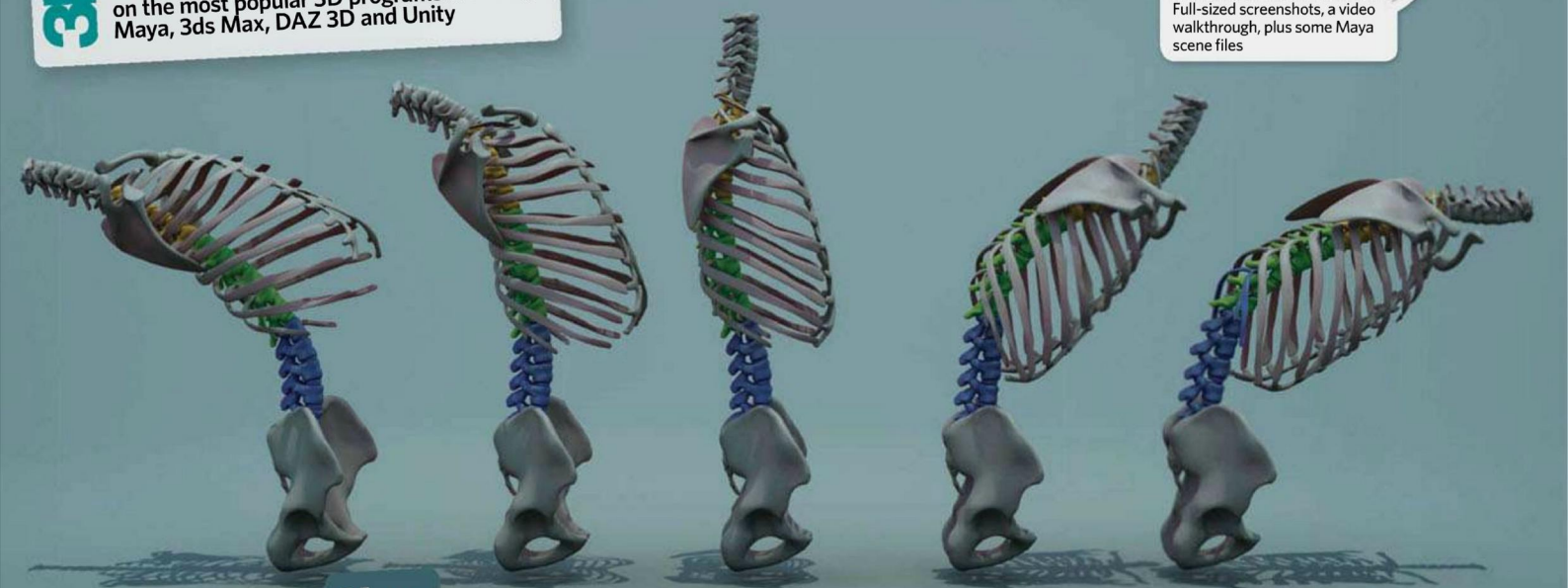
On the Disc

Full-sized screenshots, a video walkthrough, plus some Maya scene files



Maya

Auto overlap in a spine

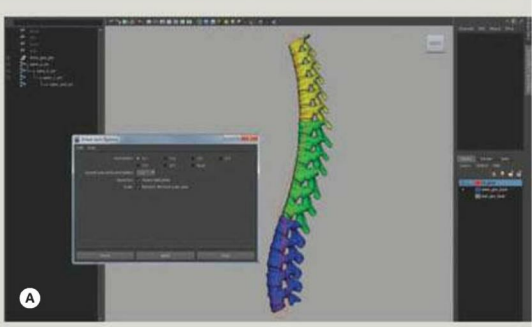
How do you create an FK spine with functions to give automated control?

As a rigger, a principal priority for me is to ensure that when the rig is put into an animator's hands, it doesn't restrict their narrative choices, but actually helps to realise them. The following tutorial explains how to add an automated wave-like motion to an FK spine without compromising the animator's freedom to work on top.

When added to an FK spine, the attributes can quickly add a subtle sway backwards and forwards, immediately giving the sense of the character breathing. However, spines are not the only application, and movement need not necessarily be subtle. This technique is equally as effective with tails, ropes and other assets that require a wave-like motion and therefore need overlap. A school of fish with these automated controls, for example, would require only minimal additional animation on top for quick results.

Regarding practicalities, throughout the rigging process, it's important to get consistency with our joints and our controls. We will want, for example, to make sure our chain rotates the full length in the same manner, thus making the rig's behaviour predictable. For this example, we will need to make sure that the rotate Z is the axis that bends the spine joints backwards and forwards, as we will be using that attribute later on in our expressions. Correct placement of our controls is also important, and making sure that they match the same orientation and position of our joints is vital. In order to place our controls in the correct position, we will create an offset node at the top of each control's Hierarchy. As the offset node will be a parent of the control curve, we can use this to hold all the different transform values to move the control into place.

In between the control and the offset node will be an auto node. We will create expressions that utilise the Sin Math function to drive these auto nodes. These expressions will also have the ability to control the speed, size and offset of the Sin Wave that will be generated. The expressions will be using the Frame Counter, so hitting the Play button will get things moving. To give the animator complete direction over the behaviour of the auto spine, we will add a control that has master level attributes as well as individual joint level attributes.



A

01 Build the joint

To begin with, open up scene file '01_joints.ma' and, in the Animation panel, navigate to Skeleton>Joint Tool. Go into the side view and create a four-joint chain that follows the curvature of the spine starting from the base. Rename the joints from the root to the tip as follows: 'spine_a_jnt', 'spine_b_jnt', 'spine_c_jnt' and 'spine_end_jnt'. Select spine_a_jnt and then Skeleton>Orient Joints (Options), set Orientation to XYZ and Second World Axis to +Z. Make sure Orient Child Joints is checked and hit Apply A.

02 Create the controls

Create a Nurbs Circle and rename it 'spine_a_ctrl'. With the control selected,

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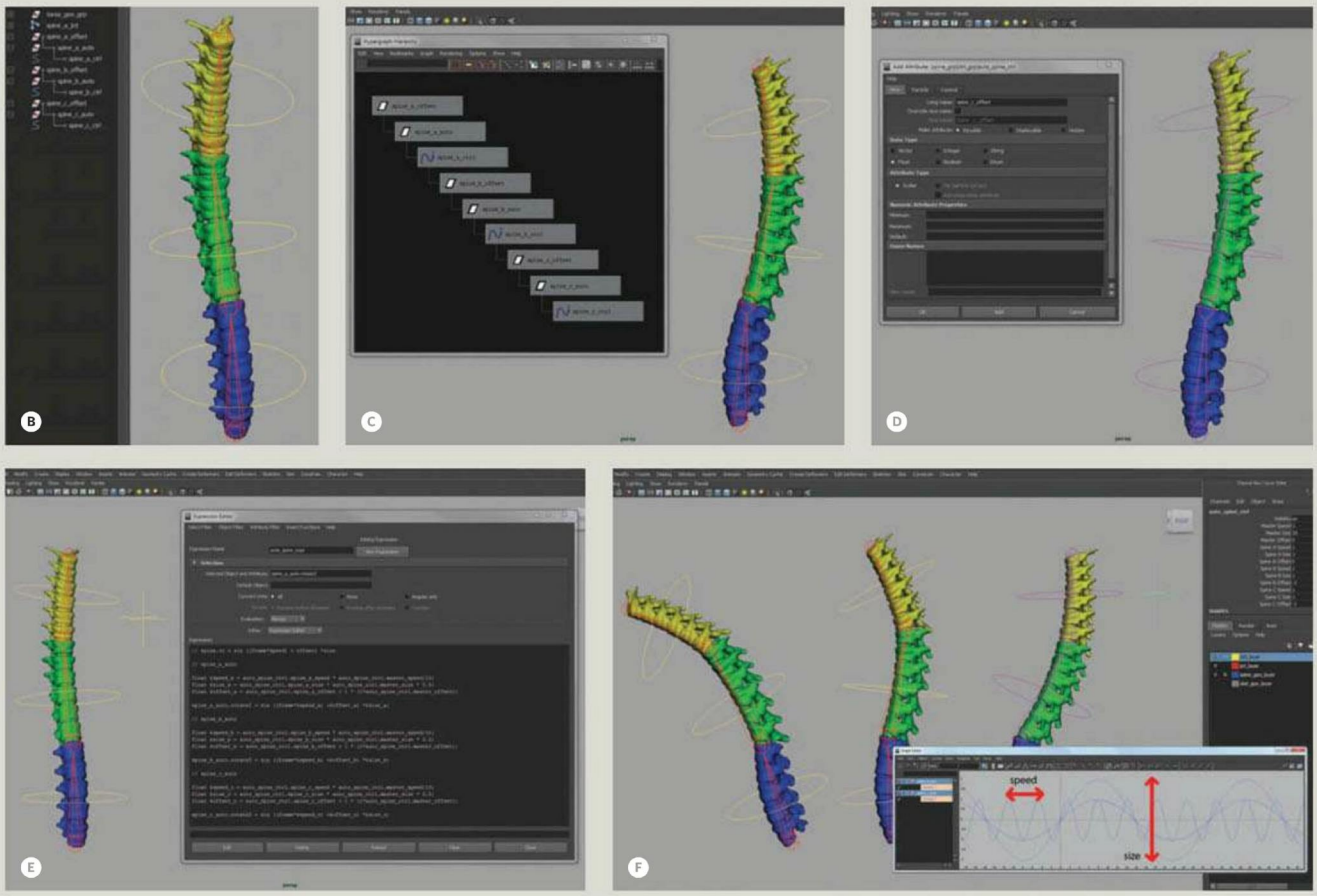

hit Cmd/Ctrl+G twice to create two empty nodes above it in its Hierarchy. Rename the top node 'spine_a_offset' and the next node down 'spine_a_auto'. To position the control, in the viewport, select spine_a_offset, shift-select spine_a_jnt and hit P to parent the offset node under the joint. Select the spine_a_offset and zero out the values in its Translate and Rotate channels. The control should snap into place. Un-parent the offset control so it's not a child of the joint anymore. Do the same step for joints b and c B.

03 Assign constraints

You can edit the shape and position of the controls by hitting F9 and editing the CVs in Component mode. We now need to create a Hierarchy within our controls that mimics the parent/child behaviour of our joints. First make spine_c_offset a child of spine_b_ctrl, then make spine_b_offset a child of spine_a_ctrl. Next the constraints: first select 'spine_a_ctrl' and shift-select 'spine_a_jnt' in the viewport. Navigate to Constraints>Orient (Options). Reset the settings and then hit Apply. Your control will now orient the joint. Repeat this same step for the other controls and their relevant joints C.

04 Auto control

Parent each of the spine vertebrae geos to the joints closest to them, in order to see the effects of the rig. Create a Locator and position it close to the side of the spine. Rename the Locator 'auto_spine_ctrl', then lock and hide the Translate, Rotate and Scale attributes in the Channel box. With the auto_spine_ctrl selected, navigate to Modify>Add Attributes and add the following attributes with a Data Type of Float: 'master_speed', 'master_size', 'master_offset', 'spine_a_speed', 'spine_a_size', 'spine_a_offset', 'spine_b_speed', 'spine_b_size', 'spine_b_offset', 'spine_c_speed', 'spine_c_size' and 'spine_c_offset'. Leave the Min, Max and Default options empty D.

05 Apply the expressions

We will be creating our expressions to affect the auto nodes of our Hierarchy – this will enable us to still use the control curves to animate on top of the auto spine. With the auto_spine_ctrl selected, navigate to Window>Animation Editor>Expression Editor. For spine_a_auto type out the following code:

```
//spine_a_auto
float $speed_a = auto_spine_ctrl.
spine_a_speed * auto_spine_ctrl.
master_speed/10 ;
float $size_a = auto_spine_ctrl.
spine_a_size * auto_spine_ctrl.
master_size * 0.5 ;
float $offset_a = auto_spine_ctrl.
spine_a_offset + 1 * (1 * auto_spine_
ctrl.master_offset) ;
spine_a_auto.rotateZ = sin ((frame*$sp
eed_a)+$offset_a)*$size_a;
```

Repeat the steps for spine_b_auto and spine_c_auto E.

06 Test the auto spine

Let's now plug some values into the auto_spine_ctrl to test it out. Put a value of 2 for Master Speed and Size. If you hit Play nothing will happen as we need to turn on some attributes for each joint. Put a value of 1 for each of the spine's Speed and Size attributes. For the spine b and spine c Offset, put a value of -2 so they are delayed by two frames. The Master controls act as a multiplier, so you can edit the spine as a whole F.

Further improvements

We have created a spine with an s-shape curvature to reflect human anatomy. Because we only have a four-joint chain running through it, you may find that the results are not so smooth. To get better results, you could create a spine chain that has more joints, let's say 12, and then use a splineIK handle to control it. The four-joint FK chain could then control the splineIK and this would give a more realistic result. Alternatively, creating a four-joint chain in a straight manner will give better results, as the initial bend in the spine is absent. There are two extra scene files on this issue's disc that explore these concepts.

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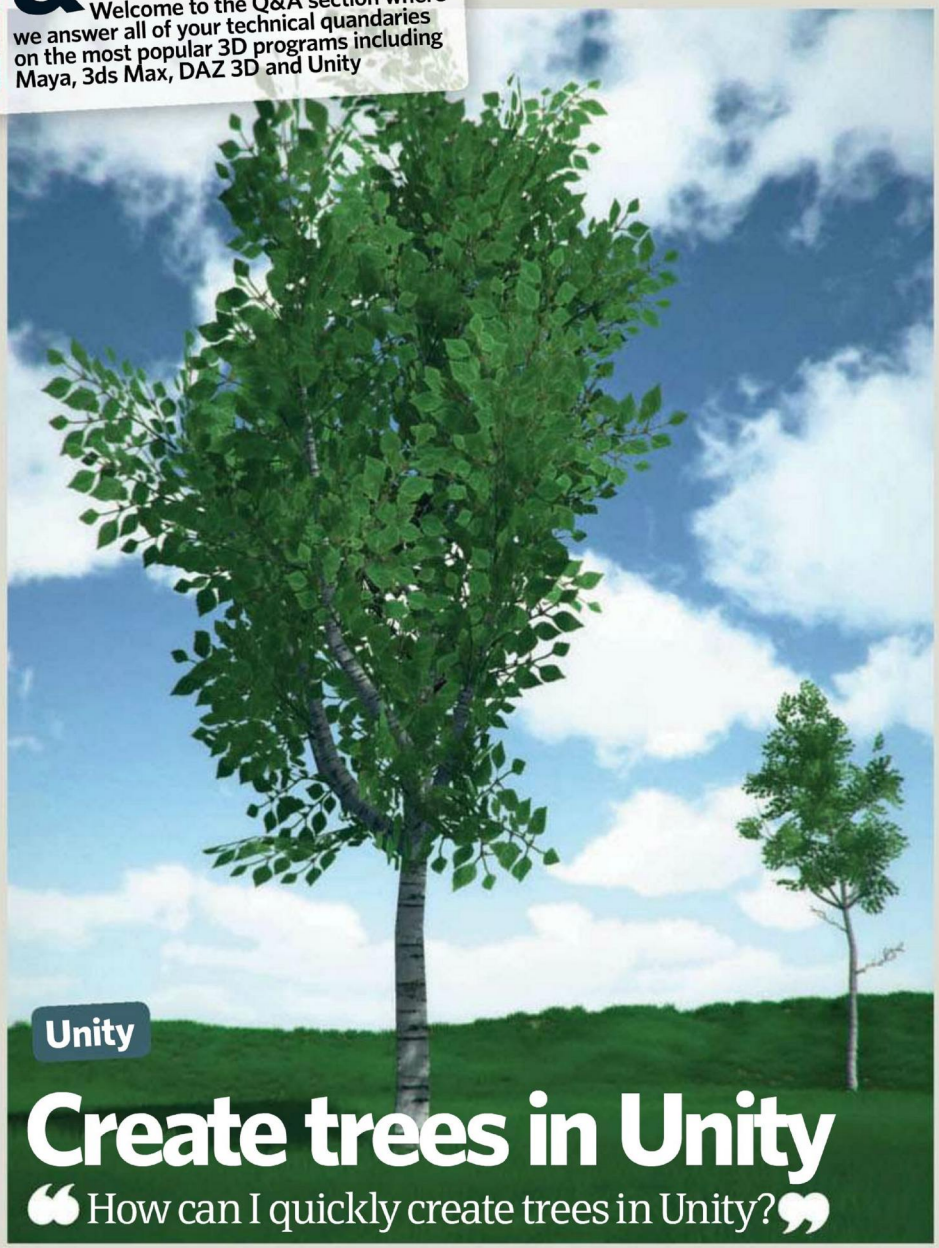


Unity

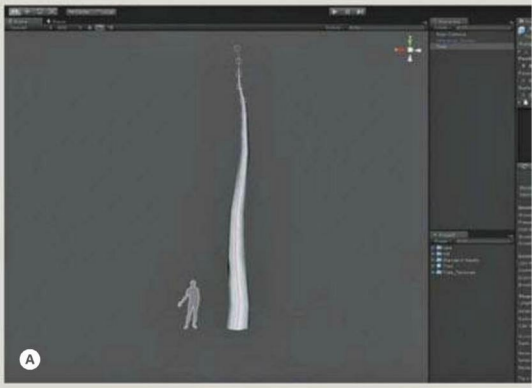
Create trees in Unity

"How can I quickly create trees in Unity?"

Before the Tree Generator was introduced in Unity, the only way to populate your virtual worlds with trees would involve a lot of manual work using external 3D applications or dedicated tree generators. Not only would this complicate the main workflow, but some of that software costs a lot more than a handful of Unity licences. With the release of Unity 3.0 though, this has changed, as the main coder behind the generator joins forces with the Unity developers to include the powerful Tree Editor into the Unity engine.

Not only is the Tree Editor fully implemented in the Unity editor, but it also works seamlessly with Unity's own Terrain engine. This means you can create dense forests with different types of trees without even leaving Unity. For textures and leaves you will most probably use an external 3D and image application, but other than that most of the work can be done in Unity.

For this small tutorial we will guide you through the creation of a simple birch tree. It has a pretty basic structure and should be quite easy to create using the Tree Editor. You can create pretty much any tree type with this tool, but some types will require more time and patience. The creation of custom mesh leaves and branches will often take some time but, as always with 3D work, patience is king.



The Freehand tool

For added control over shape and placement of the tree branches and leaves, the Freehand tools really come in handy. Using these tools, you can quite easily move and rotate the branches and leaves to your liking. The Freehand tool also enables you to draw the branches as splines, which can speed up workflow and lead to some really interesting tree shapes. Just remember that once you start using these tools, you can't go back and adjust the procedural settings of your node without losing your freehand edits. It is therefore a good idea to create a main tree base first and work on cloned copies of this one for freehand edits.

As the Tree Editor is node-based, the main workflow evolves around the creation and connection of nodes. These nodes have their own separate settings and can either be adjusted using numerical input, sliders or by applying curves. At first these curves can seem a little daunting, but once you understand the basic principle behind them, you will start to wonder how you managed to work without them. Not only do curves give you full control over the placement of leaves and branches, but you can also use them to control scale based on their placement on the branches and so on.

The Tree Editor has its limitations though and can't, in its current state, be

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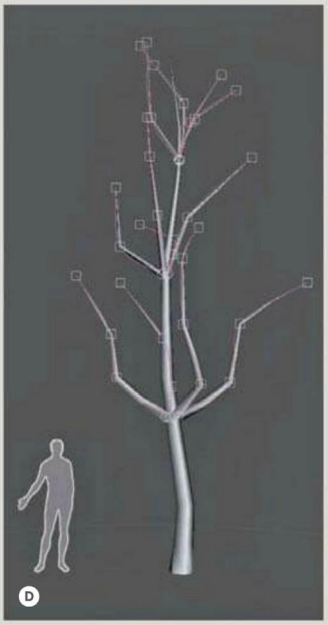
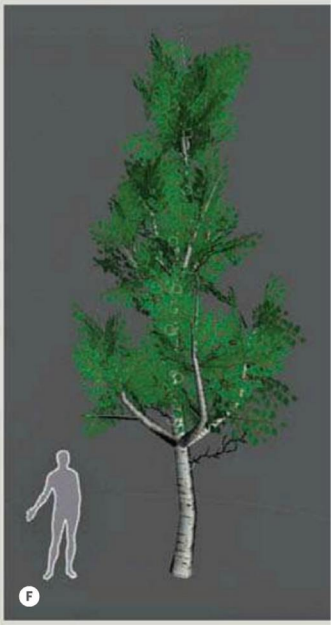




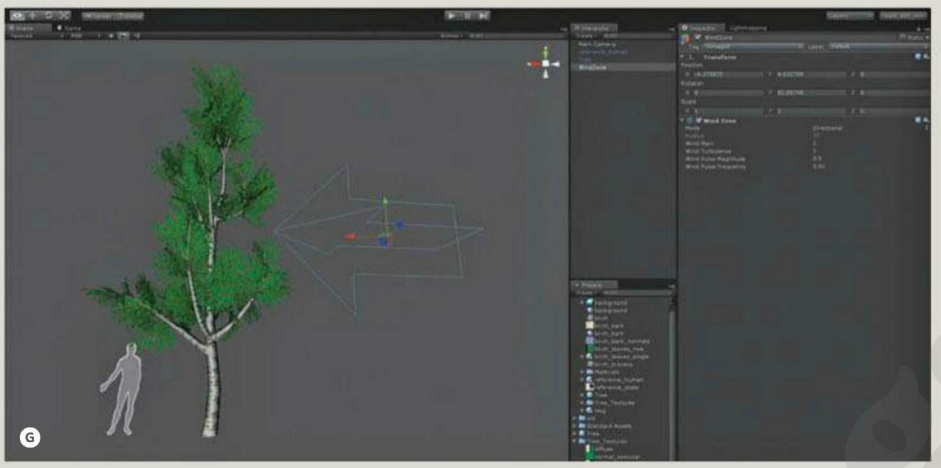
compared to dedicated programs such as SpeedTree. As it comes free with Unity, the Tree Editor is still an extremely powerful addition to the toolset and the more time you spend with it, the more impressive your results will be. This tutorial won't cover all of its features, but will hopefully give you a glimpse of what this tool can do. On mastering these simple techniques, you will be able to apply them to your much larger projects.

01 Create the tree base

Trees are generated by going to the top menu bar and selecting GameObject>Create Other>Tree. We now have a tree trunk in our scene and the Tree Editor is open in the Inspector panel. Before we do anything else, we should also add a capsule collider to our tree in the Component>Physics>Capsule Collider menu. This is not only good for collision, but it also makes it easier for us to set the height of the tree. In this scene we're also adding a human reference model for realistic measurements A.

02 The new Tree Editor

Being node-based, the Tree Editor is extremely intuitive to work with. By selecting nodes from the Node view, we get access to their individual settings such as Scale, Materials and Distribution across the trunk or branches of the tree. The root node also gives us access to advanced quality settings such as leaf translucency, shadow quality and ambient occlusion. Most of the settings are curve-controlled, which means more power and control to the user B C.



03 Add branches

Let's add some branches to the trunk by selecting our trunk node and clicking the Add Branch Group button below the Node view. A branch appears on the trunk, but let's add a bunch more by increasing the frequency and changing the Distribution mode from Random to Whorled. This will place the branches in circles around the trunk and we can choose how many should be in each circle using the Whorled Step slider. We will also use curves to control the Distribution, Growth Scale, Growth Angle, Crinkliness and the Seek Sun settings D.

04 Apply more branches, twigs and leaves

Our base tree is pretty much done, so now it's time to add some twigs and leaves. Selecting the newly created branch node, we will add both branches and leaves to this node the same way we did in the previous step. For this tree we will use a textured mesh for our leaves, as this tends to be more realistic. For trees to be used in the distance, textured billboards could be a faster option E.

05 Bring in further textures

Selecting the trunk and branch nodes, we can now drag and drop our desired bark material onto the Branch Material slot of each node. For added fluffiness, we will also add a leaf node to the outer-branch node. The twigs will be added as a leaf node on the main trunk and are using a simple mesh as geometry. We will also do some minor adjustments to the Scale, Distribution and Growth Angle of the leaves and twigs F.

06 Alter Wind Zones and final tweaks

Our tree is pretty much done, but we can still do some final adjustments by transforming the individual branches and leaves. Before doing these final tweaks though, we should always save a master version of our tree and work on copies. For this tree, some of the branches are moved around and edited for a more random look. Finally, we will add a Wind Zone to our scene by clicking the Create Wind Zone button found in any of the nodes G.

3DArtist

Back to basics

Creating that natural look has never been easier with 3ds Max's MassFX physics engine

3ds Max

Simulate randomness with MassFX

> We look at the principles behind MassFX and the innovative ways in which it can be used in more than just animation

Ever tried to mimic randomness by hand in 3ds Max? It simply doesn't happen. With this easy technique we will demonstrate how to use the MassFX physics engine to fill a stationery holder with randomly positioned pens and pencils, creating that otherwise elusive natural aesthetic.

MassFX was first introduced in 3ds Max 2011, offering users a long-awaited replacement to the often less-than-stable Reactor engine, it was not until 3ds Max 2013 that MassFX began to embrace all of the features of its predecessor. It now offers rigid body and cloth simulation out of the box. For this tutorial, we will be using 3ds Max 2012, although all of the principles discussed should apply equally to versions 2011 and 2013.

Leveraging NVIDIA's pioneering PhysX technology, MassFX is able to simulate physical interactions between seemingly infinite amounts of objects nearly in real-time, producing stable and accurate simulations. As the topic of this tutorial may suggest, its uses aren't simply limited to the somewhat standard simulation of knocking over building-blocks. MassFX is a helpful tool in both stills and animation environments, being able to easily create randomness, fill volumes with objects and drape cloth over furniture.

MassFX is based upon Static, Kinematic and Dynamic rigid body types – each of which yield different results and assign various properties to objects for simulation.

Static rigid bodies act by defining that the applicable object should not move during simulation yet should interact with moving (dynamic) objects – a prime example of this would be a floor plane, it represents a stationary constant that enables Dynamic objects in the simulation to interact with it.

Dynamic rigid bodies are likely the most used within MassFX, they act as a standard physical property definition, enabling the assigned objects to be affected by gravity (and other 3ds Max forces) as well as interacting with other rigid body objects. MassFX enables users to assign physical

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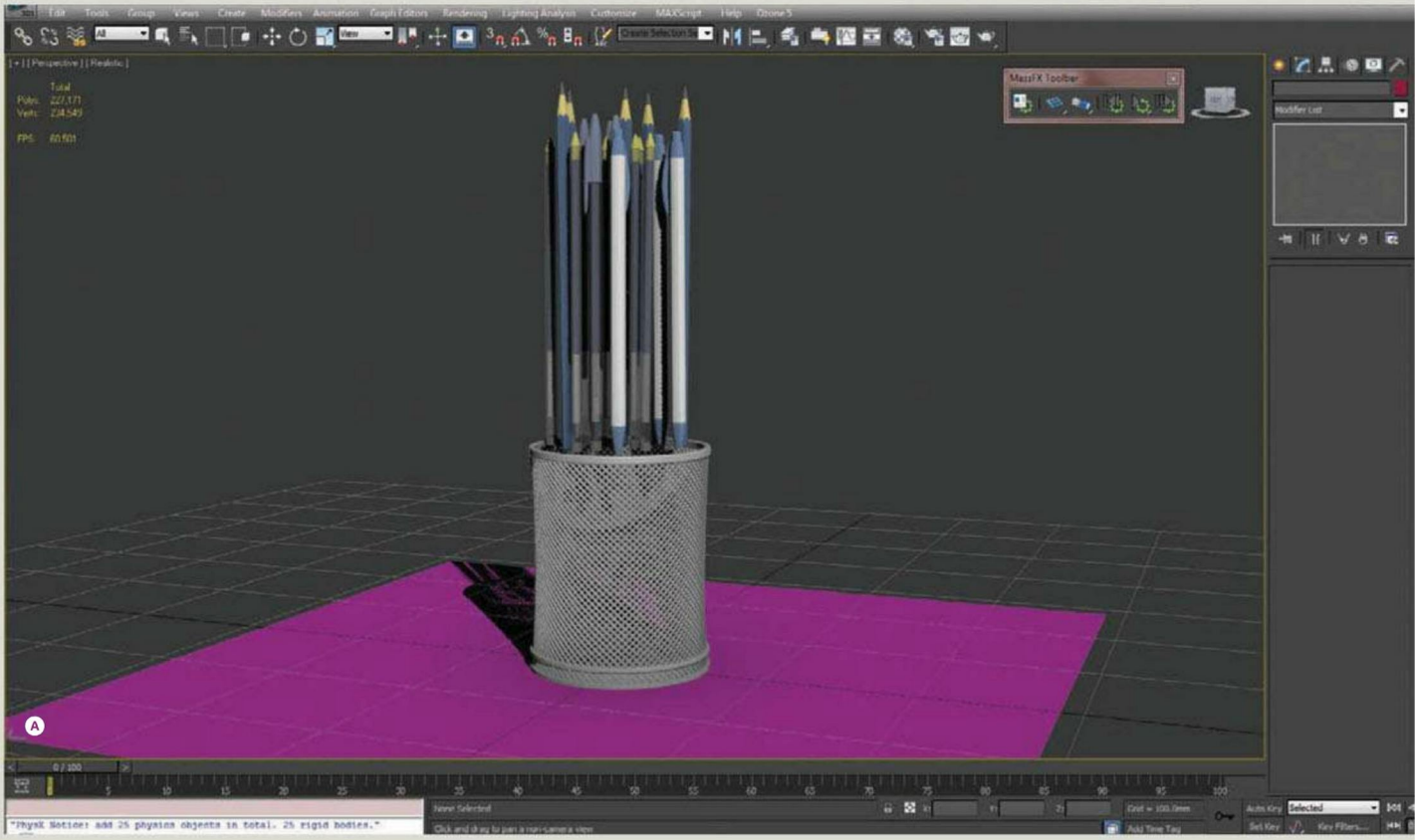


material values to these rigid body objects, such as Mass, Density, Bounciness, Friction and so on.

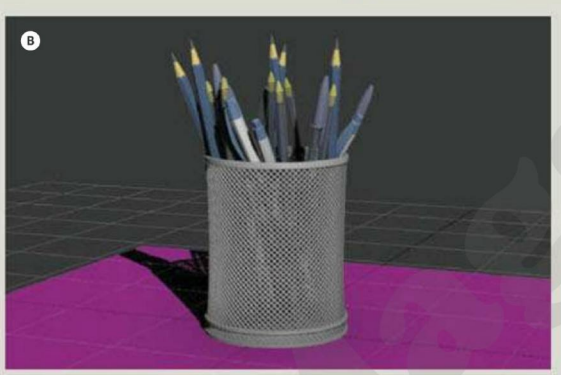
Kinematic bodies share attributes from both Static and Dynamic rigid body types – with the object acting as a puppet to the strings of an assigned animation and accompanied by the collision mesh moving alongside it. Kinematic objects are not, however, affected by gravity and other forces in the same way that their dynamic counterparts are, they will only follow a path assigned to them by the user. While they can influence Dynamic objects, Kinematic rigid body objects cannot be influenced by other simulation objects, Dynamic or Static. A Kinematic object can be transformed into a Dynamic object at any given time during a simulation.

In the case of this tutorial, the stationery will be assigned Dynamic rigid body properties, whereas the stationery holder and floor plane will be defined as a Static rigid body selection. It is not necessary to use the Kinematic definition for this tutorial, however if the intention were to animate the stationery holder while the stationery was falling, the holder would need to be defined as a Kinematic rigid body object.

By freezing the stationery objects so as to appear randomly positioned in the manner shown in the main image, it is as simple as choosing the most visually appealing frame from within the baked animation. This technique could be used in the exact same way for situations such as filling a digital fruit bowl or scattering rocks on the ground.

MassFX currently utilises CPU-based PhysX technology, so an NVIDIA GPU is not needed, although reasonable computer specification is recommended so as to run simulations smoothly and efficiently. MassFX is particularly easy to set up and use however, with a limited number of primary controls it is able to define objects, assign material values where necessary, simulate and ultimately bake the results to the timeline by way of keyframes ready for rendering or output. There are also several constraint options included within the toolset, enabling users to define mechanical motions using the Rigid Body solver. In this way users can re-create hinge or ball and socket joints These options are available as Rigid, Twist, Alide, Hinge, Universal and Ball and Socket operations.

While this tutorial focuses on the principles behind basic rigid body simulations using MassFX, as well as how they can be transferred to all manner of applications and tasks, it is important to note that the skills demonstrated can be applied to everything from architectural visualisation to full-blown visual effects. We will also discuss some alternative solutions and techniques whenever possible, such as the notable RayFire tool.

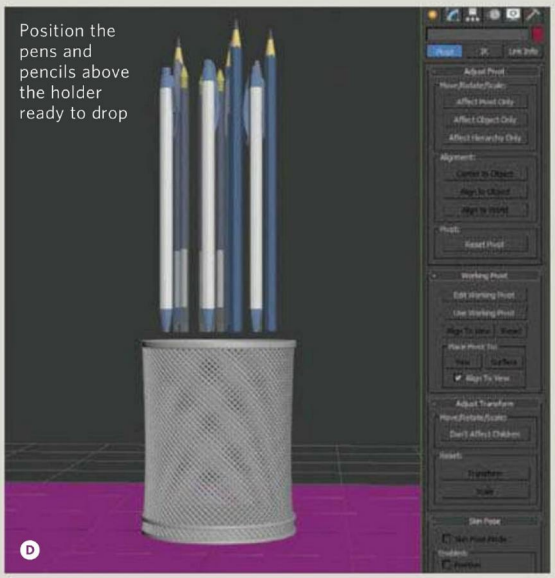


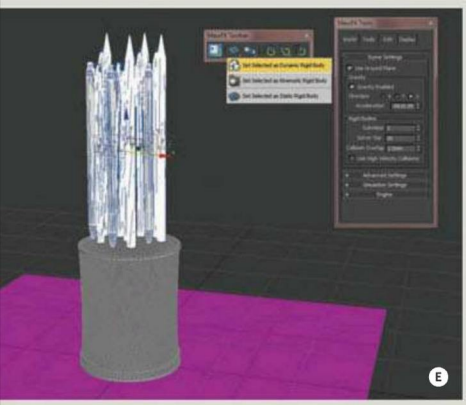
While not used strictly in the same way as MassFX, RayFire, by Mir Vadim, was designed to replicate some of the tools in use at Blur Studio. RayFire acts as a PhysX-based destruction engine within 3ds Max and utilises various fracture algorithms to smash rigid body geometry upon impact. It was released prior to MassFX and has gone from strength to strength in recent years, featuring in several major motion pictures. The tool is a great paid alternative for those with a destructive streak and worth investigating. Find out more at www.rayfirestudios.com.

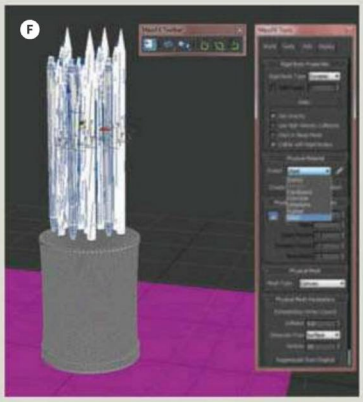
A MassFX's uses extend as far as arch vis, settling and positioning objects based on physical attributes

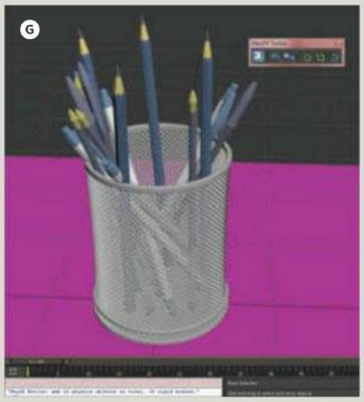
B Digital physics take effect on the pens and pencils, settling them into the holder

3DArtist Back to basics









C The components that will eventually form the basis of the simulation, all of which will collapse into a single-poly object

E Open MassFX and define objects as either Dynamic, Static or Kinematic rigid bodies

F Open the MassFX toolset and apply a material preset to the pens and pencil objects

G Press the Simulate button in the MassFX toolbar and watch the objects all fall into place

H Refine Collision Overlap as well as the Global Simulation, you can also enable Multithreading if you need to

I Refine the MassFX mesh types to establish an accurate base for simulation

J Check the simulation and then Bake All to commit them to the timeline

Harness the power of digital gravity in your work

01 Set up geometry

To begin, open 3ds Max and prepare your geometry – ensure that complicated objects such as the pencil holder are collapsed into one piece of geometry as opposed to several objects or groups. This can be done by converting all of the objects in question to editable polygons (Ctrl/right-click then select Convert To>Editable Poly) and subsequently using the Attach function from within the Modifier menu to bind the various component objects.

Poly count is not massively important at this stage, although you should aim to work within the limitations of your computer. To view a scene's poly count hit 7 on your keyboard and it will appear in the top-left corner of the viewport C.

02 Position the objects

Once all of your desired geometry is created, centre all of the object pivots by highlighting the geometry and using the Affect Pivot Only>Centre to Object commands within the Hierarchy tab. Now position the pens and pencils slightly above the holder, but avoid leaving too much of a gap as this will only slow down the eventual simulation. Copy the geometry as many times as desired to achieve a nice dense effect. Again, this is dependant on the CPU power and poly count, so avoid going too crazy to start with D.

Get the Fracture Voronoi script

Those interested in the demolition effects created by RayFire should check out the handy free Fracture Voronoi script which utilises some of the fracturing algorithms seen in RayFire. This can begin to generate cracks in geometry ready for simulation, or rather demolition, in MassFX. It offers an introduction to some of the technology at work within Mir Vadim's RayFire tool and is well worth checking out. Fracture Voronoi is available free from www.scriptspot.com.

03 Assign Rigid Body values

Open the MassFX toolset by Ctrl/right-clicking in the top toolbar and selecting MassFX Toolbar. This will prompt a small dialog box containing essential MassFX controls to appear. Now assign either Dynamic, Static or Kinematic Rigid Body values to appropriate objects by making a selection and holding down the button highlighted in the Step 3 image. For the pens and pencils we will use Set Selected as Dynamic Rigid Body. For the holder and floor plane, we will use Set Selected as Static Rigid Body E.

04 Choose material values

Open the extended MassFX toolset by clicking the far-left button in the MassFX toolbar. With the pens and pencils selected, navigate to the Edit tab and assign a material value from the built-in presets. This will give the objects approximate Physical Mass, Bounciness and Friction value sets. We have used the steel preset simply because we are only going to use one frame from the simulation and don't

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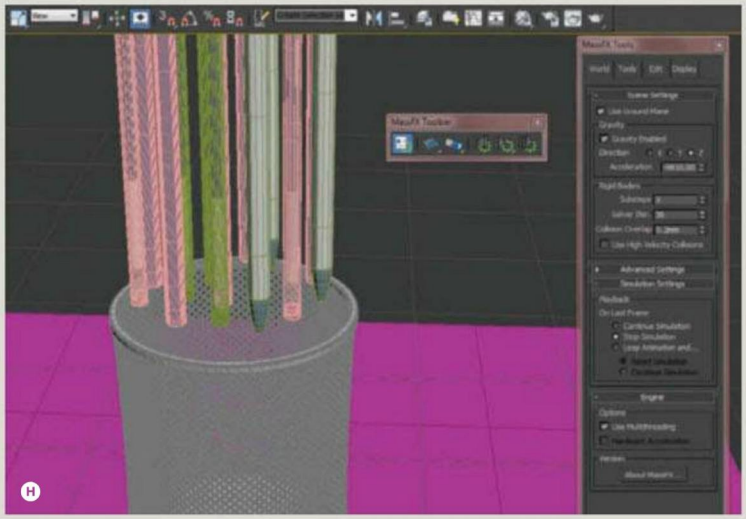

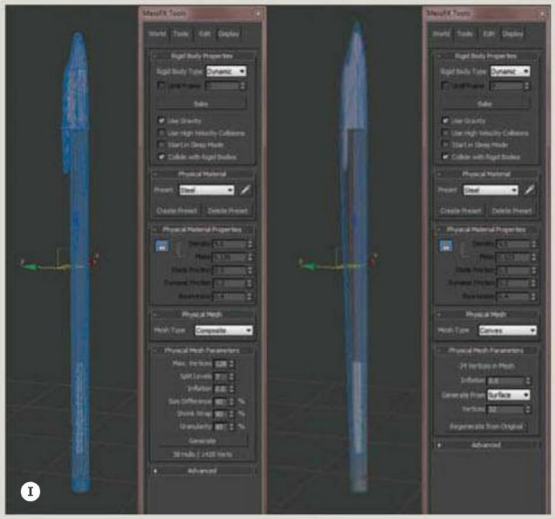

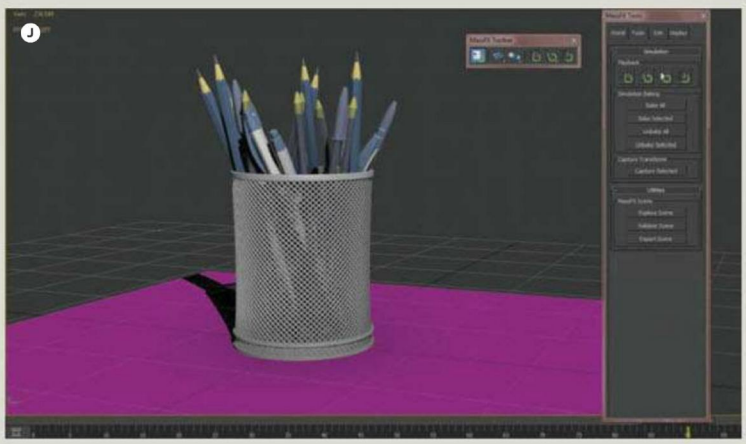

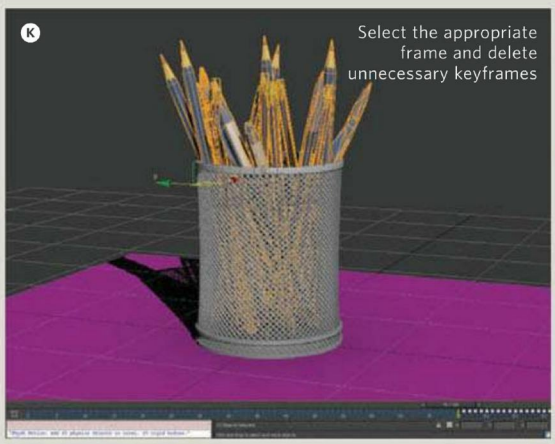

require any accurately animated bounces. Tweak these values should the eventual simulation not appear as desired F.

05 Test the simulation

Upon satisfactory completion of material value editing, press the small play arrow in the MassFX toolbar. Providing all things are correct, the pens and pencils should begin to drop into the holder and settle in random positions, press the play icon again to stop simulation (rewind icon to reset objects back to original positions). This is the first major hurdle completed, although you will likely notice that some of the objects are intersecting with one another and not settling correctly. Now is a good time to add or subtract objects to better match whatever outcome you are ultimately aiming for G.

Other uses for MassFX

MassFX has a multitude of potential uses beyond the simple simulation of knocking over boxes. It's well worth considering how a physics engine might improve daily life, from positioning objects to creating dynamic and exciting mechanical animations. With the onset of 3ds Max 2013, MassFX now fully supports the cloth simulation functions of PhysX, so why not try draping fabric across a bed for architectural visualisation purposes?

06 Refine Global Simulation settings

Open the World tab within the extended MassFX tools and modify the Collision Overlap setting depending on your scene scale. Due to the fact that we are working with relatively small objects at a close level of detail, we have used a value of 0.2mm. If you are working with large objects this value may need to be increased accordingly. If you have a multicore processor it's also worth enabling Multithreading within the Engine section so as to make use of all available CPU power H.

07 Refine simulation meshes

To accelerate simulations, MassFX automatically creates an invisible, low-poly proxy mesh that references each object. If this is configured in a manner that is too vague, it can cause inappropriate intersections or floating to occur. To modify these settings, select an object and navigate to the Modify tab and the proxy mesh will automatically become visible.

At this stage it is possible to choose a series of different mesh options, including use of the original geometry (which you will find is heavily processor-intensive). We have opted to use the composite setting as opposed to the original convex value for the sake of accuracy. Repeat this process across every necessary simulation object and be mindful of increases in the load on the computer I.

08 Resimulate and bake

Press the Simulate button once again and MassFX will begin to resolve the scene based on the new values. Once complete, check for any unwanted results and adjust object positioning so as to achieve a satisfactory aesthetic. Providing you are happy with the result, press the Bake All button and MassFX will then begin processing the simulation and applying it to your timeline. It does this intuitively by way of individual keyframes J.

09 Choose a frame

Once all frames have been baked to the timeline, scrub through and choose the most visually appealing frame. Highlight all of the moving objects, in this case the pens and pencils. Select and delete all of the unnecessary keyframes from the timeline, leaving only the desired frame. Drag the remaining single keyframe to the start of the timeline (Frame 01). You can now begin using your completed result K.

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Chillblast Fusion Projection £833 ex VAT

Intel's new Ivy Bridge Core i5 makes a strong debut in this budget workstation from Chillblast

Since the arrival of the Core microarchitecture, Intel has had a policy of alternating between new processor designs and making existing designs smaller. So after 2011's Sandy Bridge comes 2012's Ivy Bridge, which essentially fits the same architecture as Sandy Bridge into half the area. Our first look at the new range comes in the form of Chillblast's Fusion Projection, which sports the top model from Core i5 range, called the 3570K.

Like the Sandy Bridge when it first arrived, Ivy Bridge comes with a maximum of four cores in its initial incarnation. The i5 used in the Chillblast further restricts this by not supporting Hyper Threading, so there are no virtual cores available to boost performance for highly parallel tasks, although there is a Core i7 version of Ivy Bridge that does include this technology. The Core i5 3570K does support Intel Turbo Boost, so its nominal clock speed of 3.4GHz can increase to 3.8GHz on a single core when required, giving it benefits for single-threaded tasks.

However, for this system, as with most Sandy Bridge-based workstations we've looked at in the past, Chillblast has chosen to permanently raise the clock frequency to 4.5GHz. This is fully backed by the two-year collect and return warranty. The processor has been partnered with a relatively modest 8GB of 1,600MHz DDR3 memory. Like the original Sandy Bridge CPUs, the memory architecture is dual-channel initially, so memory is supplied as two 4GB modules, leaving two further DIMM slots available for upgrade. This might come in handy, as systems are now regularly arriving with 16 or 32GB, so 8GB is decidedly entry-level.

Although Ivy Bridge also comes with an improved integrated graphics system, that's of little use for professional 3D, so Chillblast has thrown in a NVIDIA Quadro 2000. This is far from a high-end 3D accelerator, with 1GB of GDDR5 memory and 192 CUDA cores. But it's still a capable mid-range card, with very acceptable performance when running a wide variety of 3D content creation software. It's also a fully supported workstation card, so comes with accreditation to run a wide range

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The good & the bad

- ✓ Keen price
- ✓ Great performance for the small cost
- ✓ Workstation graphics
- ✓ Decent removable storage
- ✗ Single hard drive included in the package
- ✗ Modest 8GB of memory
- ✗ Mid-range graphics

The NVIDIA Quadro 2000 is a reliable, if not exceptional, accelerator

> The Chillblast Fusion Projection does provide a very respectable level of workstation performance at well under £1,000

of professional applications, unlike the gaming cards you might expect at this price.

Being a machine aimed at the more budget-conscious end of the workstation market, the Chillblast doesn't opt for the now almost universal combination of a solid-state disk for operating system and apps combined with larger conventional disk for general data. Instead, a single 1TB Seagate Barracuda 7200.14 7,200rpm drive is supplied for both duties, although this new drive has already garnered a good reputation for performance. A 24x DVD rewriter and multi-format card reader have also been included, meaning the system has comprehensive removable storage on offer.

With its midrange specification, but cutting-edge processor generation, the Chillblast still promises useful performance, despite its modest price. With Maxon's Cinebench R11.5, the system achieved a CPU rendering score of 7.31. This isn't a particularly stellar result compared to systems we generally review at 3D Artist, and has clearly been held back slightly by the lack of Hyper Threading, but it is very respectable for the money. The OpenGL score of 45.36 is similarly mediocre, but very reasonable for a system with this graphics specification. The results in SPECviewperf 11 continue the picture, with a few differences. The lightwave-01 score of 71.96 is one of the highest we've seen, showing how much this test benefits from a fast single CPU core clock speed, but the maya-03 score of 42.93 is more midrange, as is the SolidWorks sw-02 score of 46.86. Overall, though, this is an excellent set of results considering the budget price of the overall system.

The machine is not going to give multi-socket Xeon E5 workstations any sleepless nights, with a relatively modest specification. The Chillblast Fusion Projection does provide a very respectable level of workstation performance at well under £1,000. For animators on a tight budget, it's great value.

Essential info

www.chillblast.com

- £833 ex VAT

OPERATING SYSTEMS

- 3.4GHz Intel Core i5-3570K
- 8GB 1,600MHz DDR3 SDRAM
- 1GB NVIDIA Quadro 2000
- 1TB Seagate Barracuda 7200.14 7,200rpm SATA hard disk
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Our verdict

Features	7/10
Performance	8/10
Value for money	10/10
Quality of results	8/10

> One of the most powerful workstations you could buy for under £1,000

Final Score 8/10

Michael 5 $40

It's time to get all masculine on your DAZ 3D Studio 4 renders with the Genesis version of the Michael model

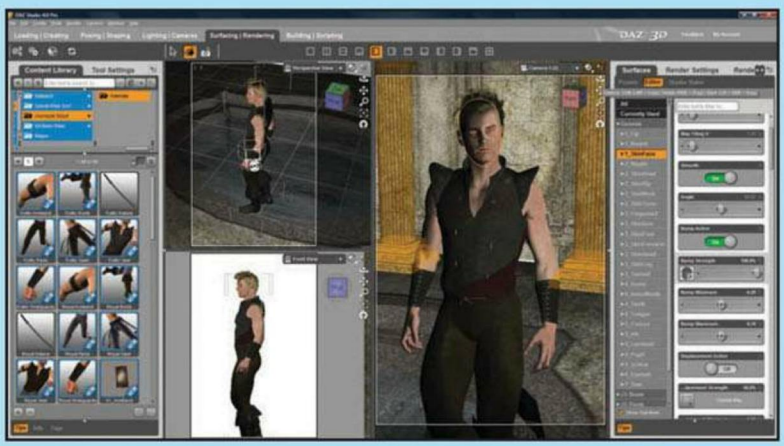
After the release of Victoria 5 for Genesis, the new DAZ 3D character model system, it was only a matter of time before Michael 5 arrived on the scene as well. This male character has all the advantages of the new Genesis system that makes it easy to pose, adjust expressions and morph into entirely different-looking figures. However, the key elements of this figure, with regards to looking more realistic than Michael 4 (which, let's face it, didn't look that good), are the skin texture maps. The good news is that DAZ 3D has gone to town on these, with bulging veins, pores, muscle definition and variations in skin tone. These are so good that you actually have to be very picky to find the areas that don't look so good. The shoulder textures look a bit stretched and the face can have a bit of a waxy look. Still, if you increase the effect of the Bump map you can make the face look a bit rougher without turning it into a pizza. The shaved neck area looks particularly realistic after doing this.

The real beauty of the Genesis system is twofold. First the rigging has been improved so that the built-in manipulators can do more and offer precise control. There are some preset expressions you can try out with sliders to modify the strength, or tinker with everything from eyelids to eyebrows and the positioning of cheek muscles. It all helps make the face slightly asymmetric. There's a set of poses supplied with Michael 5 and while these are fairly basic they cover all the starting positions you might want.

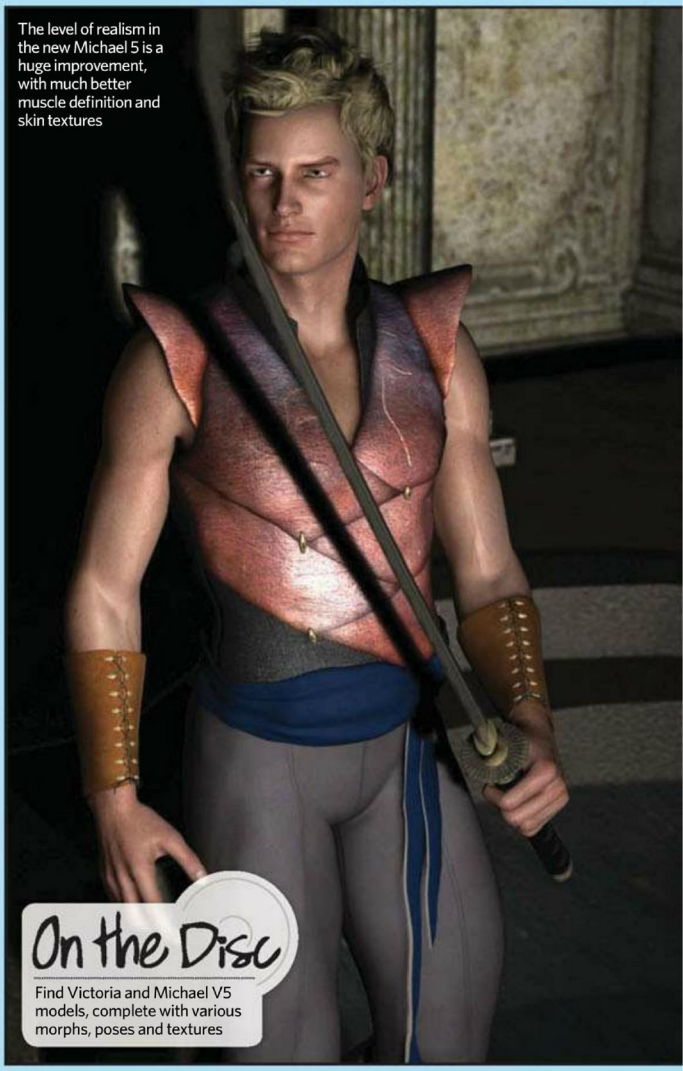
You can then manipulate the figure to create a more specific and customised pose. The other area that's a massive improvement, and really will save DAZ artists a lot of time, is the optimisation of the clothing fitting. Items specifically designed for the character are added intelligently, rather than having to be assigned and then manipulated to fit properly. Once added, they are automatically filled out to fit without any of the dreaded pre-Genesis poke-through. Where there's a clash, the system will ask if you want to replace the content that's already there. So if you add some new hair to Michael's head when it already has some, the old hair will be removed from the scene to fit the new.

Being a Genesis figure, Michael 5 is actually a base template. From this you can manipulate and morph it into characters that look completely different. It might not be as detailed or satisfying as a character sculpted in ZBrush, but the jump in realism from Michael 4 is substantial and it's good enough for plenty of stock character use, saving you time and effort.

There's a wealth of transformation and posing tools, from specific parts of the model to expressions and general posing commands



Increasing the Bump Strength on the SkinFace texture gives Michael less of a pimped-up model look and he becomes more realistic, though this shouldn't be overdone



The level of realism in the new Michael 5 is a huge improvement, with much better muscle definition and skin textures

On the Disc

Find Victoria and Michael V5 models, complete with various morphs, poses and textures

www.daz3d.com

Our verdict

Features	8/10
Ease of use	9/10
Quality of results	8/10
Value	8/10

"If anything, better than the recent Vicky 5 and a great male template for Studio renders"

Final Score 8/10

WorldMags.net

Samsung Series 7 Slate PC XE700T1A From £870/ $1,100 US

A small yet technologically sound PC alternative, great for image postproduction and presentation

Samsung promises users a sleek machine when they buy the Series 7 Slate PC, available in four powerful versions. Genuine Windows 7 Home Premium at 64-bit comes as standard, setting the device up to impress at once.

With a hard-plastic shell and black-gloss finish, Samsung has instantly obliged aesthetically. The display is an impressive 11.6-inches from edge to edge, presenting images acutely through built-in 1,366 x 768 HD resolution. This display is also LED backlit, which means lower power consumption and brighter display of colours; 16 million according to Samsung.

We soon realised that this doesn't mean just a maximum amount of colour accuracy, but also superb management of contrast ratio. There didn't seem to be a hint of back-panel bleeding, in overly bright or dark areas, when setting brightness to Full Tilt. Image quality shines through, even in the harshest and lowest-lit setting. We feel this reinforces the Series 7 Slate PC as an optimum portfolio device.

To confirm this, the Series 7 Slate PC also includes a HDMI port, which opens up the possibility to sync your tablet to large-format TVs. This enables you to display your works and animation at full 720p HDTV signal. But what about using the Series 7 Slate PC to produce work? Samsung has promised similar performance as a desktop solution, which we tested and were impressed with.

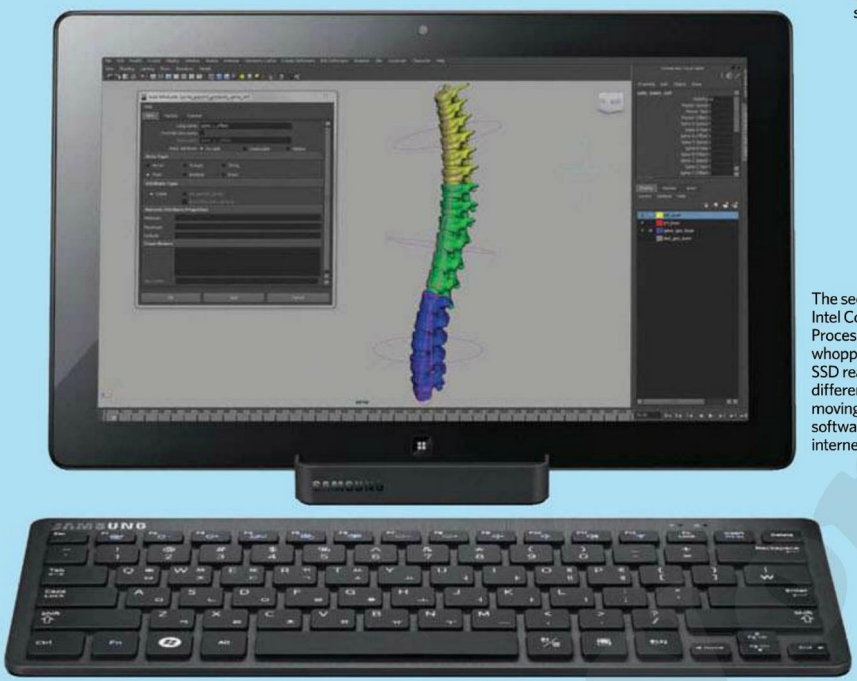
The Series 7 Slate PC is more than capable of performing image display out of installed software. Its Intel Core i5 processor, with 1.60GHz CPU and standard 4GB RAM memory would be more than enough to render on-screen from Maya 2013, or even ZBrush 4. It can also handle running recent Photoshop editions for tweaks.

Once familiar with it, we soon realised that this tablet PC isn't as accessible when working with it singularly, but this is mere compensation for what is an impressive widescreen display. The Series 7 Slate PC does offer automatic alternate viewing modes, suitable for those working with portrait-orientated projects.

The Series 7 Slate PC can cost you much more than competitor devices, with many of the factors we've discussed going some way to justifying this. Purchasing this device will ultimately depend on your budget, but we would say it's absolutely worth the cost.

You can easily sync a Bluetooth keyboard and attach the Series 7 Slate PC, creating a small footprint PC alternative

Samsung's Fast Start and SSD technology fire up the device within 15 seconds, giving you instant access to your apps and software



The second-gen Intel Core i5 Processor and whopping 64GB SSD really made a difference when moving between software and internet windows

www.samsung.com

Our verdict

Features	8/10
Ease of use	8/10
Quality	9/10
Value	8/10

"A worthy alternative to larger PC solutions, able to match their power and productivity"

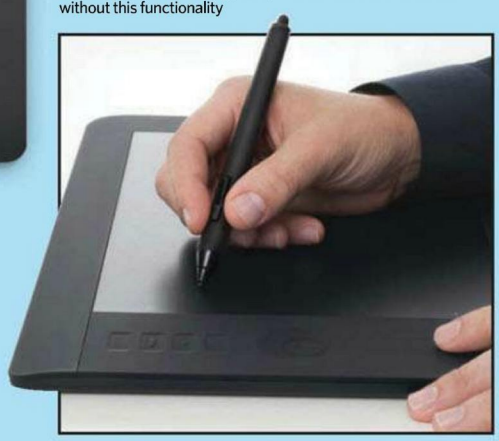
Final Score 8/10

Wacom Intuos5 touch £200

An exciting next generation tablet for 3D artists and digital designers

The Wacom Intuos5 touch is even more comfortable with a new soft-touch surface, which is a relief after long hours of use

The Wacom Intuos5 comes in small, medium or large sizes, all including touch technology. Only medium sizes are available without this functionality



Wacom Tip Sensor with 2,048 levels of pressure makes it compatible with pens used with Intuos4, Cintiq 21UX and Cintiq 24HD; so no need to buy a replacement if you own one of these

The Wacom Intuos5 touch is the company's latest tablet device, more redefined than radicalised. Out of the box, this fifth edition is distinctive from previous versions, but looks to enhance rather than replace existing functionality.

Wacom has paid close attention to the Intuos5 touch's ergonomics and aesthetics. This latest device now has a much lower profile, combined with a soft rubber texture surface, which feels far more luxurious when resting your palms and wrists than with previous hard plastic models. The Wacom Intuos5 touch is far more tactile in truth, with its rubber finish extending to the model's new and improved Grip Pen.

Now feeling far more secure, this registers 2,048 levels of pen pressure and up to 60-degrees of pen tilt. This complements intensive workflow, with a far more natural feel when working with the pen. This is reinforced with the Intuos5 Tip Sensor technology, which enables the lightest of application with impressive pressure sensitivity. Digital painters should make the most of this, as well as those working in compositing and matte painting.

Multi-touch functionality is assured, now a must for contemporary application devices such as this. Users are able to work naturally using three, four or five fingers in addition to the pen. Standard Windows and Mac gestures are operable but customisable gestures can be created in supporting applications, which makes navigational input easier and more intuitive for users.

The Wacom Intuos5 touch preset commands can be reset to your liking in the Touch>My Gestures options, from the computer Preferences. Here, you'll start to appreciate how much more apprehensible the Wacom Intuos5 touch is, in comparison to previous models. Scroll down the Standard Gesture list and on-screen illustrations will educate you in precise gesture application. Other options also fall in line with this easy-to-navigate operation.

The Wacom Intuos5 touch ExpressKeys and Touch Ring are also improved, presented through the new Express View Display and Heads-Up Display. These are again definable from the Preferences, also activated through simple touch gestures. Either press the Toggle Touch Ring button to scroll through commands, or hold your finger over an ExpressKey then run up and down the menu list, before pushing to select and activate.

Again this action is complemented with the device's plush matte-black rubber finish, yielding to the touch. Aesthetics are reinforced by four small yet noticeable, cool L-shaped LED lights, which indicate the active area for pen and touch – subtle, futuristic and appealing to digital artists.

The Wacom Intuos5 touch also comes with easy-to-install wireless capabilities (accessory kit sold separately), based on a dedicated 2.4 GHz radio frequency technology to provide a simple and instant pairing. This is just one more forward-thinking addition to underpin a new product with undeniable charm.

www.wacom.com

Our verdict

Features	8/10
Ease of use	8/10
Quality of results	9/10
Value for money	9/10

"The Intuos5 touch has evolved through its on-screen display and enhanced multi-touch capability"

Final Score 9/10

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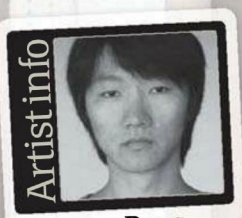

RenPeng Dong

Personal portfolio site
www.oldrhyme.cgsociety.org

Country China

Software used
3ds Max, Maya, ZBrush, Mudbox, Photoshop, V-Ray

"I saw an image on a website that was like a kind of transparent man blending with his background, which brought me this great idea... [I] decided to show the feeling of part drying paint, part real, part plaster"

Non-US readers turn to page 92

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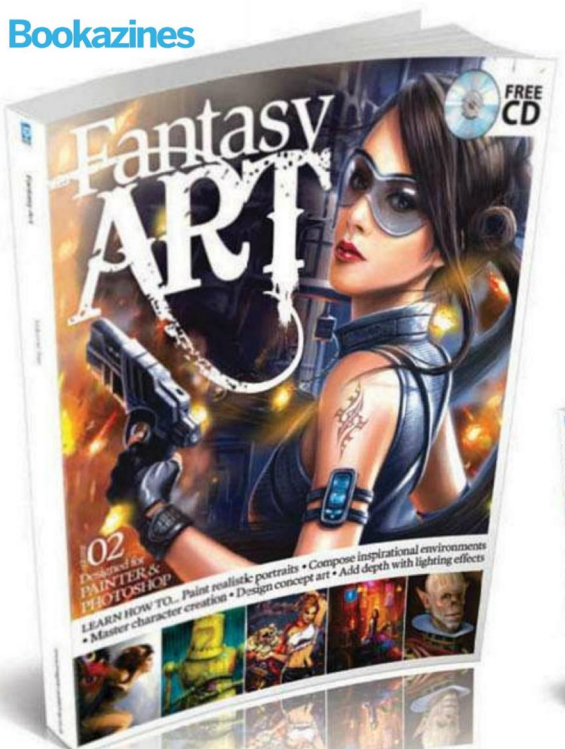
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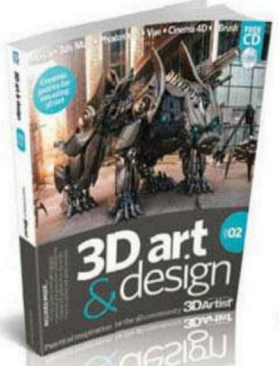

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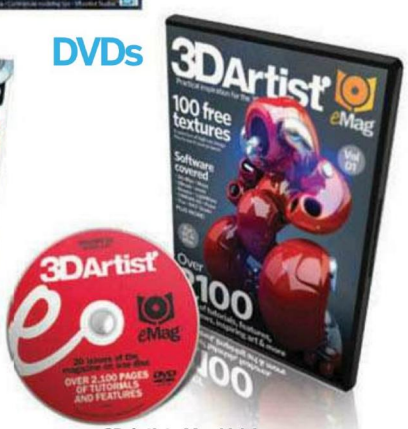

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inside

'Réflexion'
Creative studio Planktoon teams with animator Yoshimichi Tamura to pay homage to the Disney classics
www.planktoon.com
© Planktoon/ Yoshimichi Tamura

"The process of making a film will vary [depending who the director is]. The film itself will always be a Planktoon production when finished"

Planktoon reveals its latest highly stylised animated short. Page 105

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It's cheaper to upgrade

As ever, previous owners of any flavour of Adobe's Creative Suite, from CS3 and above, can upgrade to CS6 at a fraction of the cost of the complete new package. The prices for upgrading depends on the previous collection you've owned, but all the information you need is at www.adobe.com.

Creative Suite 6 makes a splash

Adobe's updated creative applications see some of the most radical changes yet

A Every program in CS6 has received a makeover, complete with new icons

B After Effects' new Global Performance Cache makes for a speedier workflow

C Camera tracking is one of the helpful features to be included in the new After Effects CS6

Creative Suite 6, is now out in the wild, featuring an updated version of every one of Adobe's 17 flagship creative applications which come bundled in five flavours: Design Standard, Design & Web Premium, Production Premium, Master Collection and the newly introduced Creative Cloud.

Adobe seems to have focused on upping the performance and speed of its applications, as well as adding some useful new features to make workflows far more intuitive. Listing them all would require a lot more pages, but here are some highlights.

For those opting for the Premium or Master Collections or the Creative Cloud offering, Photoshop Extended CS6 offers some incredible new features aimed at creating 3D artwork, including a simplified workflow, a dedicated workspace and faster rendering thanks to the Adobe Mercury Graphics Engine. Compositing 3D objects and photos is now much easier, with the ability to set horizon lines and perspective planes in the photo background. You can now also place 3D objects onto the ground plane with shadows and highlights. Finished work can be easily exported to a number of popular 3D formats.

After Effects CS6 has been given a significant speed boost thanks to the new Global Performance Cache that saves every preview of work in progress for instant recall. This applies even after you've closed a project, by switching saves between the RAM and hard disk. The new 3D Camera Tracker makes it easier to apply 3D objects to real-life footage, by tracking the 2D camera's footage and applying a 3D camera that follows its movement, orientation and position throughout the shot. This makes it easy to add text or objects with the correct perspective fast.

Creative Suite 6 is available now, starting at £1811/$1,899 for CS6 Production Premium, which includes both Photoshop Extended and After Effects.

Introducing Creative Cloud

Creative Cloud sees Adobe's first major foray into the world of cloud computing, enabling users to download any of CS6's programs (as well as Adobe Acrobat and the Adobe Touch Apps), store, share files and publish work. Creative Cloud is available for £46.88/$49.99 per month.

NEXT ISSUE

In-depth reviews of Photoshop and After Effects CS6

> "Adobe seems to have focused on upping the performance of its applications, as well as adding some useful new features"

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FMX 2012

Paul Champion reports on how FMX is once again keeping a digital finger on the virtual pulse

Since feature films take roughly three years to produce, the game-changing impact of James Cameron's 2009 showpiece blockbuster, *Avatar*, was felt stronger than ever at this year's FMX.

Delegates assembled to learn how virtual-production techniques have recently been transforming the film industry, as former analogue processes are now being transferred to digital. This ha s caused boundaries between pre-production, production and postwork to blur significantly.

Several of 2012's most successful VFX feature films, such as *Hugo*, *Real Steel* and *War Horse*, harnessed virtual production. Different film-production stages from world building to actual production workflows were explored in great depth.

Other highlights included VFX pioneer and Oscar-winner Douglas Trumbull, who revealed the urgency to enhance movie experiences using higher frame rates, brighter projection as well as bigger and better screens.

©FMX 2012. Photographer: Reiner Pfisterer

Visual effects supervisors Rob Legato and Ben Grossmann gave detailed accounts on making *Hugo* and added some anecdotes about Martin Scorsese

"This kind of film is why we all wanted to get into this line of work," Guy Williams revealed to a thrilled crowd

Autodesk announces Smoke

The new video-editing software is ready to launch

Autodesk is readying a completely overhauled Smoke for Mac, in time for a launch later this year. The integrated editing and VFX software is touted to have been completely redesigned and repackaged with an all-in-one creative workflow and node-based compositing tools built into the timeline.

Other features inside the all-new Smoke include a comprehensive toolkit featuring: Action, for true 3D compositing, Colour Warper, for professional grading and colour matching, and one-click chroma keying. Its real advantage comes in its low system requirements. The application itself runs on the most recent generation of Apple's iMacs and MacBook Pros, utilising Thunderbolt technology for external storage, making it accessible for amateur users.

Smoke for Mac is pencilled in for launch later this year for $3,495 per licence. A pre-release trial is available on www.autodesk.com now.

©Autodesk

The new Smoke for Mac touts an impressive node-based compositing system inside the timeline

Software shorts

Bringing you the lowdown on product updates and launches

The iClone Physics Toolbox

Reallusion's iClone Physics Toolbox plug-in enables anyone to create animations with real-world physics. The plug-in includes over 30 tools enabling users to create models with structures and forces that power static 3D models. The iClone Physics Toolbox is available now for $80 from www.reallusion.com.

Autodesk Digital Entertainment Creation Suite 2013

Announced this year, Autodesk's Digital Entertainment Creation Suite, containing the likes of 3ds Max, Maya, Softimage, Mudbox and MotionBuilder, boasts greater integration between the different software titles. The package is also set to include SketchBook Designer, Autodesk's concept art creation software. The Ultimate suite costs $7,995 (approximately £4,975).

Vue 10.5

The latest version of e-on software's natural 3D environment software, Vue 10.5, is now available. The updated software comes with a number of new features and interface improvements, including: directional light matching, spline roll and resampling and rock convexity. Vue 10 users under maintenance can upgrade for free today, otherwise pricing starts at $1,790.

Insightful snippets

VFX trailblazer Douglas Trumbull calls to bring back the spectacle of the cinema

Cinema needs "Higher frame-rates and vividness of images", says Douglas Trumbull

©FMX 2012. Photographer: Reiner Pfisterer

Douglas Trumbull is on a mission to save the movies, with some very innovative ideas. "Low-light projection of films (on average four foot-lamberts) in cinemas is killing stereoscopic 3D," explains Trumbull, who wants to double the currently aimed standard of 15 foot-lamberts. His solution is to use a special hemispherical, high-gain, torus film screen that reflects light back directly into the audience.

Advocating higher frame rates to alleviate problems with objectionable stereoscopic 3D artefacts, trumbull is currently "experimenting with a process called Frame Integrated Motion Analysis." This enables frame rates to be varied by pixel or object and can be used as a creative story-telling tool.

A look to the future

iPi Soft set to release version 2.0 of its markerless iPi Motion Capture software

Developer iPi Soft's Motion Capture 2.0 is set to bring about a number of improvements on the original, affordable, markerless mocap software. The program, which requires little more than an inexpensive USB webcam, has been improved with a number of features, including greater support for female characters. Most importantly though, it's now compatible with Microsoft Kinect. As even the most expensive version of the software comes in at $995, it's ideal for amateur and freelance animators in need of mocap material.

New tools

PipelineFX brings render farm control to artists with its ArtistView GUI for Qube!

With the sole intention of giving artists full control over the rendering of their own projects, without the training required by more complex systems, PiplineFX's recently introduced ArtistView GUI for Qube! enables users to manage queues, job logs, view completion times and even scrub through rendered frames from within the interface.

The interface itself can be fully customised to suit each company or individual's needs, and is available for free to all PipelineFX customers with Qube! 6.0 or higher.

The ArtistView GUI for Qube! is simple and straightforward for easy render farm management

Opinion

Driving online development

How advertisers are using digital media to drive online engagement

Liseanne Gillham, senior industry market development manager, Media & Entertainment, Autodesk

Liseanne Gillham facebook.com/autodeskdigitalmedia

Autodesk Media & Entertainment clients push creative limits every day in film, games, television and advertising.

One emerging area of growth is online digital advertising. Mobile platforms such as smartphones and tablets are driving this change. Consumers want high-quality content mirroring their experiences at the cinema, watching TV, or playing a console game.

To explore the growth and opportunity for rich digital media in online advertising, Autodesk commissioned Forrester Consulting to evaluate how advertisers are currently using the medium and to provide suggestion to help agencies capitalise on the opportunity.

With the interactive marketing spend growing 17 per cent annually, to $77 billion in the US alone by 2016, engaging consumers online is more challenging than ever. Digital video advertising is leading this development, which is great news for 3D content creators. Video is no longer passive, but is at the core of interactive experiences.

Image courtesy of North Kingdom

> "Rich digital media is not just a trend, it's the future of advertising"
>
> **Forrester Consulting, "How Advertisers are Driving Online Brand Engagement with Rich Digital Media"**

Every agency interviewed by Forrester expressed that rich digital media drives higher online engagement, by enabling better brand stories and giving consumers a more personal online experience. Forrester further concluded that agencies with this expertise have competitive advantages, and creative talent with film and games experience is sought after by leading agencies.

In response to these findings, Autodesk has launched an online community at www.facebook.com/autodeskdigitalmedia where digital media professionals can connect.

Congratulations to...

Bournemouth University experts help enhance the lives of disabled people with 3D

Bournemouth University's National Centre for Computer Animation will be joining forces with other 3D experts and medical groups as part of the SHIVA project (Sculpture for Health-care: Interaction and Virtual Art in 3D) to help people with physical and learning disabilities express themselves by creating objects using a 3D printer. BU's contribution will focus on the software used by participants.

STRATASYS®

3D printing giants to merge

Stratasys and Objet Ltd to join forces as a leader in 3D printing for manufacturing

Leading 3D printing manufacturers Stratasys and Objet Ltd are set to merge to create a world-leader in the field of 3D printing for prototyping and manufacturing. The two companies will keep their bases in Minnesota and Israel respectively, but will come under the Stratasys name.

It's hoped that the merge will create an even larger selection of 3D printing and direct digital manufacturing products for new and existing customers. Stratasys recently released its lowest-priced 3D printer, Mojo, at just $9,990.

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Project Focus

'Réflexion'

A unique gouache-look and Parisian chic add atmosphere to this metaphorical animation

planKtoOn

Project Réflexion

Description A very Parisian feel infuses this comedy collaboration between Planktoon and veteran animator Yoshimichi Tamura. It features Louise, who is in great haste to get ready for a rendezvous with her fiancé but ends up having to fight with her own reflection. It ends on a final homage to the Disney classics.

Client Self-commission/ Yoshimichi Tamura

Country France

Software Maya, Renderman

Company Paris-based creative studio Planktoon is a five-strong collective known for directing commercials, short animation films, game cinematics and series pilots, with a particular focus on cartoon-style animation. The studio involvement in projects ranges from specific workflow aspects, such as character design, storyboard, art direction and production roles, to creating the whole film itself.

Website www.planktoon.com

Animated comedy 'Réflexion' combines 2D and 3D animation, with a highly stylised painterly look. The story, about a young woman whose concerns with how she looks manifest as a fight with her own reflection, came to veteran Disney animator Yoshimichi Tamura when he was in Los Angeles in 2003.

"For any personal project, the author generally directs the others and gives the overall artistic direction and mood for the film," says Planktoon. "He may produce the storyboard as well as the character designs, or leave those to someone else. We all have distinct skills – coming from backgrounds ranging from architecture, to 2D animation to comics. The process of making a film will vary [depending who the director is]. The film itself will always be a Planktoon production when finished. It's automatic and gives the collective real artistic value."

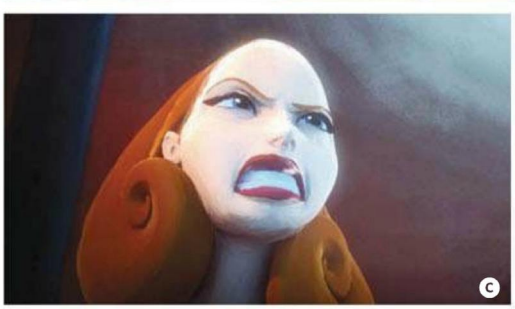
With Yoshimichi Tamura leading the direction, storyboarding and animation, Planktoon used a team of 70 people on this project, comprising a host of 3D and 2D artists and developers. The studio spent quite some time on initial research and character designs before the storyboarding phase. "We first set a rough board, quickly drawn with dirty pencils and bad-quality paper," says Planktoon. "We made a proper storyboard out of it, to help fix the narrative mood and then edited it in After Effects to get a first feel for the timing. Some rough sound effects were also added."

A 3D animatic in Maya was next. "Since the final film is in 3D, it makes sense to work with final cameras and correct timing as soon as possible," Planktoon adds. "We do not sacrifice the mood, however, as the 3D animatic is already a precise block animation." The film took five months in total, with the rendering done in Renderman and postwork completed at Cosmo Studio in Paris.

> "It makes sense to work with final cameras and correct timing as soon as possible"
> **Planktoon**

A

B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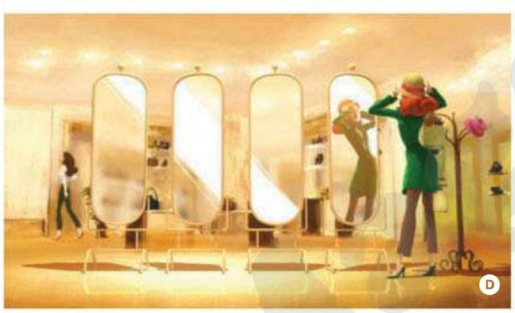
D

E

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Contributors

Yoshimichi Tamura
Director, storyboarder and animator

Planktoon (Sun, Alban, Fabrice, Alexandre and Sébastien)
Co-directors, character designers, concept artists

A A metaphorical menace rises from the mirror in 'Réflexion', a Parisian comedy from Yoshimichi Tamura and studio Planktoon

B The story, about a young woman who has to fight with her own reflection, also manages to offer more than one homage to classic Disney creations

C Character design tries to take in account the requirements of the movie more than the personal tastes of the animators, though the latter will of course creep in at some point

D The short animation opens in a Parisian department store, where heroine Louise is about to realise that she's late and must dash off to get ready for her evening rendezvous

E The unusual look of the animation was intentional. The directors wanted a movie with a lot of contrast and for it to be portrayed by the characters, emotion, music and atmosphere

Studio Access

Smart 'Homecoming'

German facility, nhb, calls upon its 26 years in postproduction for a comic, sci-fi short film

nhb

nhb is one of Germany's largest postproduction facilities for commercials. From its studios in Hamburg, Berlin and Düsseldorf, nhb offers a unique one-stop postproduction environment at every location, including editing, sound design, grading and visual effects. A partner company, mothersmilk, brings world-class music composition into the portfolio.

www.nhb.de

Project Smart 'Homecoming'
Description We open with a man and his wife in the middle of nowhere. Surrounded by darkness, he needs to admit an inconvenient truth. His whole life has been a mission to find out how far technology on earth has evolved. But an even greater twist than this alien revelation follows.
Client BBDO Proximity / Cobblestone Film Production
Location Germany
Software used Softimage, NUKE, NUKEX, Flame, Mudbox, ZBrush, Arnold

German facility nhb was taken on to cover all postproduction aspects of the Smart Electric Car commercial 'Homecoming', produced by BBDO Proximity and Cobblestone Film Production. Over six weeks, this would include VFX, grading, editing, sound and music composition. Nhat Quang Tran, VFX Supervisor at nhb, knew BBDO creative director David Mously already, and loved the background story on first hearing it.

"Our hero is confident he will be picked up to his alien planet, so he explains himself to his wife and is kind of making a show out of it," Tran reveals. "But in the end, the car is much cooler than him. So his buddies take it instead of him, leaving him back on earth, in the middle of nowhere!"

Rather than technical hurdles, there were a lot of design problems to overcome, including what the right look should be for the UFO beam or the alien skin. "It was far more than making it [look] real – it needed to be invented first!" Tran exclaims. "The point where the aliens pick the car instead [of the visitor] was crucial. We spent a lot of time to get that moment right."

Several creatives were working on 'Homecoming', in nhb's different locations. "Düsseldorf was picking up the CG car part, while Hamburg did all the tracking and Berlin created the alien and UFO," Tran tells us. "And that's just the VFX. So after grading, sound and music, I think at least 20 people were involved at different levels and at different times."

Most of the 3D was set up in Softimage with NUKEX as a main compositing environment. "There were four elements we needed to take care of: the alien, the car in parts, the UFO and the light beam effects – all elements that could not have been done practically," says Tran. "We used Softimage for the character work with Arnold as the renderer. The CG parts were created in Maya with V-Ray on the rendering side. The UFO was nearly entirely created in NUKEX. Just the basic meshes were modelled in Softimage, but could have been done anywhere. The beam light effect was Flame work, while CG composites where built in NUKEX."

B

C

Key people

Nhat Quang Tran
VFX Supervisor

Portfolio highlights

With a video post background, nhb now offers a 360-degree postwork environment to work in

A

2012 *Smart Heimkehr*
2011 *Warsteiner, 'Joy'*
2011 *Hornbach, 'Faces'*
2011 *Audi A1, 'The Next Big Audi'*
2011 *Skoda Fabia, 'Drums'*
2011 *Audi R18 TDI, 'Fluff'*
2011 *Panasonic Lumix TZ20*
2010 *Skoda Octavia, 'Streetview'*
2010 *Lamborghini Gallardo*
2010 *13th Street, 'Last Call'*

A On showing 'Homecoming' at the National Association of Broadcasters show, nhb was asked who had made the SFX rubber alien mask. Of course the team based in Berlin, responsible for the alien's creation, took this as a great compliment

B The alien finally reveals himself. Colourist Mike Friedland's idea was to create a warm night in grading. So he pulled the orange without stressing it too much and gave a slight tone of magenta to the shadows

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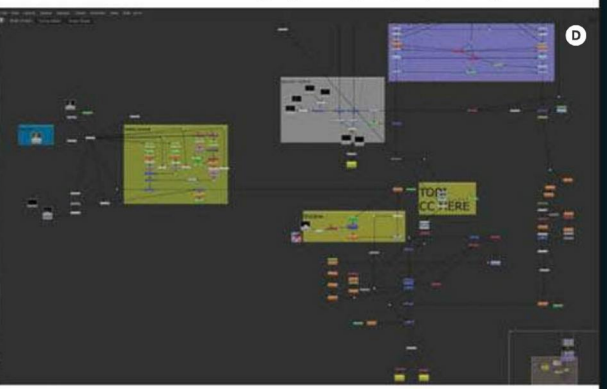

D

The alien character elements were painstakingly created by artists at nhb's Berlin facility

E

F

> "It was far more than making it [look] real – it needed to be invented first!"

The team took HDR images for every shot, using a nodal head and a Nikon D200 DSLR camera. "Having HDRs from [the] set really boosted the lighting of the shots, which for me is the most important aspect for adding realism," says Tran. "In production we used them as a basic lighting, changed [their] temperature and [placed] additional lights to the scenes. We tend to deliver the 3D as close to the [final] result as possible [for] the comp without having thousands of passes, which slow down the entire process. So we ended up using a total of nine passes in rendering, from which usually six were really used in composites. We benefited a lot from NUKEX's floating point colorspace because together with EXRs, we could push the CG parts into the right direction easily, without having concerns about lack of detail or image quality. We pushed comps using our EXR workflow to Flame, where we did the client reviews."

Several days were then spent in Flame to refine framing or add camera movements to the shots. "Our Senior VFX artist Tobi figured out a choreography for the lens flares he added in Flame, so they were supporting the climax of the story," recalls Tran. "Seeing it all together at the end was great."

C There were four main elements that the team needed to construct from scratch to make the production a success. The UFO light beam effect was created in Flame by Senior VFX artist Tobi: "We wanted it to feel organic, so we played around with stock material"

D Compositing in NUKEX: "We benefited a lot from the NUKEX floating point colorspace," says Nhat Quang Tran, VFX Supervisor. "Together with EXRs, we could push the CG parts into the right direction easily, without having concerns about lack of detail or quality"

E To push the quality even further, every shot of the film used HDR images taken on a Nikon D200 DSLR camera. Senior Flame artist Tobi figured out a choreography for the lens flares that he added in Flame. This supports the climax at the end of the narrative

F When creating the alien head in Softimage, the Berlin team of nhb tested different styles of animation. For instance, how the tentacle movement would support the creature's emotional state was key to making the character endearing yet still other-worldly

Industry insider

Miguel Ortega

Senior creature modeller/texture artist

For someone who only left VFX school in 2006, this artist already has an extensive portfolio, which perfectly combines his digital talents with his passion for sci-fi

About the insider

Job Senior modeller and texture artist
Location USA, born in Colombia
Education Gnomon School of Visual Effects
Company website www.warproductions.com
Biography Miguel has worked for several top Hollywood studios including Luma Pictures, Tippett Studio, Rhythm & Hues Studios and has just left Digital Domain to pursue a personal project. He has over 20 feature film credits and is an avid collector of sci-fi toys

Making the unbelievable believable

"Creating believable characters is very hard work. I think a strong team with a great eye and constant reference to nature is always the key. Even with the most alien or horrifying monster, I always base it on reality. A strong model will fail without a successful facial blend shape library, and everything will fail without a strong texture artist."

Some would say that you shouldn't mix your hobbies with your work, but Miguel Ortega wouldn't agree. An out-and-out science fiction and horror fanatic, he not only shares his home with an army of models – with everyone from Batman and Frankenstein's monster to Jabba the Hutt – but his average day at the office involves conjuring up his own weird-and-wonderful creatures and breathing life into them with digital wizardry.

Miguel started out as a graphic designer and illustrator but immediately felt creatively restricted, knowing in his heart that what he really wanted to do was "work in cinema making monsters." On realising this, he took the bold decision to close down shop and move to Los Angeles to study at Gnomon – one of the world's most acclaimed VFX schools. Just a month after graduating, a life-changing opportunity arrived to join Luma Pictures and model the werewolves for *Underworld: Evolution*. He hasn't looked back since.

Never one to rest on his laurels, Miguel – along with friend Tran Ma – has just embarked on another new venture, where he is developing a short from concept through to final design. If his track record is anything to go by, it's sure to be a monstrous success.

Many of the films you've worked on have featured sci-fi or supernatural elements – are these movie genres you like to watch?
Absolutely. I am an unapologetic *Star Wars* fanatic as well as a die-hard foreign horror film lover. A lot of my money used to go on toys from these genres; walking around my house is a bit like a museum, with everything from classic Universal Horror characters and a life-size Yoda, right through to figurines of DC Comics superheroes.

Do you prefer using a particular 3D software when you work?
Mudbox is my favourite program by far. Without it I'd be a compositor using NUKE. However in my job I also use Maya, MARI for texturing and TopoGun to retopologise my creatures.

You're currently working on a fantasy children's series with a friend – tell us about it.
We just finished working on our first short that is a mixture of live-action photography with 3D and traditional 2D animation. There are nearly 50 effects shots with five creatures, a mix of practical full-size, miniature and all CG sets and props. All the VFX work was done primarily by myself and Tran Ma, who's an amazing artist. It's influenced by the work of Jim Henson, Shel Silverstein and Edward Gorey. It's not very serious in tone, very stylised and lots of fun.

What's it like making the transition from a huge studio like Digital Domain, to a smaller two-person setup in your living room?
Working for DD was a dream come true, but like all companies you tend to be assigned a particular task; in my case it was creature models and textures. After six years of working professionally I found myself more attracted to doing a project from its initial concept and idea stage all the way through to design, live-action

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©Miguel Ortega & Tran Ma

> "It's important for new artists not to forget the technical skills required of a professional modeller"

Portfolio highlights

Some recent features that Miguel Ortega has worked on:

2011 *Thor*
2011 *Priest*
2009 *Avatar*
2007 *The Mist*
2006 *300*
2006 *Night At The Museum*
2006 *Underworld: Evolution*

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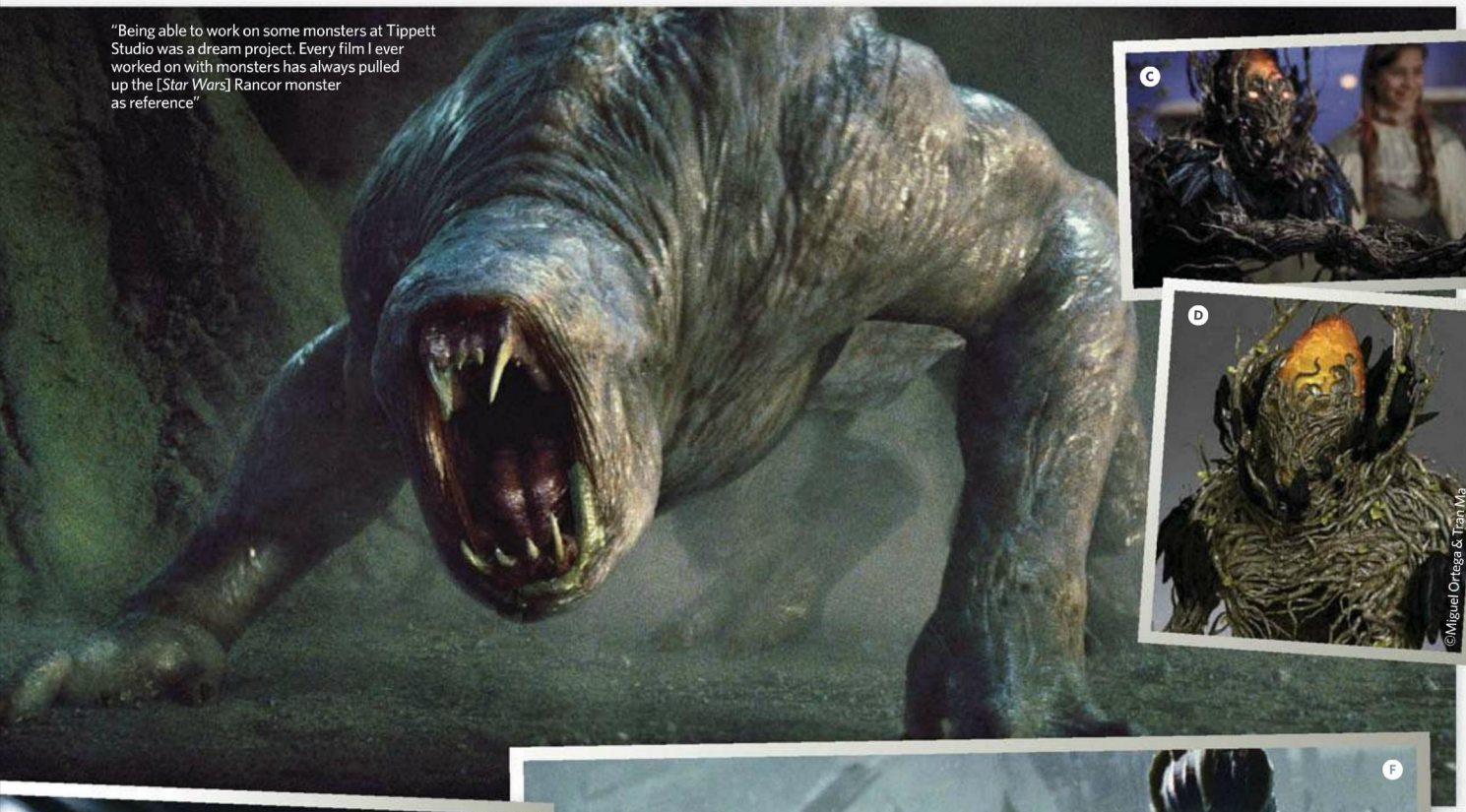
"Being able to work on some monsters at Tippett Studio was a dream project. Every film I ever worked on with monsters has always pulled up the [*Star Wars*] Rancor monster as reference"



photography, 3D and compositing. It is very different – and pays zero – but at the moment that freedom to do whatever I want is what I need.

In such a competitive industry what does an up-and-coming CG artist have to do in order to stand out?

There was a time when a good model was enough, but the competition is getting tougher. Seeing someone with a fresh approach and original voice is always good. However, it's important for new artists not to forget the technical skills required of a professional modeller. Art is king, but understanding topology and edge flow is crucial.

A Miguel filming some miniatures for horror film *Drag Me to Hell*

B A practical house with CG animated vines and statues added later

C The secret to getting personality into a CG creature? "Give a purpose and story to why things are the way they are on a creature. Look beyond the script to better understand your characters"

D Despite Miguel and Tran Ma primarily working alone on the short, Miguel admits that they've had help along the way from "some amazing friends from some of the top companies"

E Working on the Lycan werewolves in *Underworld: Evolution* was the first job Miguel landed after graduating from Gnomon School of Visual Effects

F "*Thor* was the biggest task I've ever had to work on. I led a team of 28 amazing model and texture artists for a year to build every single rock and clump of snow on Jotunheim, including all the creatures"

The best courses and freshest talent from around the globe...

Bachelor of Art & Design

Learn the foundations of VFX at Media Design School, based in a locale where the industry itself is truly starting to take off...

Though New Zealand was more popularly regarded as a scenic tourist destination, rather than a hub of technological innovation, it's becoming increasingly more associated with the latter of the two characteristics thanks to five little words: *The Lord Of The Rings*. That trilogy has transformed a once rural island country into a multi-billion dollar film industry, turning prop and special effects company Weta Workshop (www.wetanz.com) into a Hollywood powerhouse. Companies like Oktobor Animation were able to set up shop and James Cameron was inspired to set up a studio to produce the next two *Avatar* films.

So what better place to start building strong foundations in an industry than a locale where the industry itself is just starting to blossom? Highly regarded across New Zealand, and the world, for its specialised courses in digital design, the Media Design School is committed to developing graduates who can contribute directly to this emerging digital sector.

Located in the heart of Auckland across six floors of a modern 20-storey building, it's here you can take on the three-year BA of Art & Design. This is an in-depth and tailored course that provides students with a comprehensive grounding and detailed knowledge in the industries of visual effects and 3D Animation.

In the first year students learn foundation skills such as modelling, animation, rigging, lighting and compositing, while gaining intermediate proficiency in industry-standard technical tools and software. Going into the second year, students then undertake group projects alongside their core classes. These are designed to introduce the various roles required within a production team to create a short.

Going into their third year, students will then pursue a chosen specialisation in either Technical 3D Studies, 3D Animation Studies or Visual Effects and Motion Graphics. Once again they participate in group projects, but this time each student brings their individual skills from each specialisation to the table, the group combines them for a common project outcome.

The career pathways and possibilities branching off from this BA are many and varied, ranging from 3D modeller right through to visual effects supervisor. If you're willing to travel around the world to a quarter-acre pavlova paradise to start your studies, then you really can do no better than Auckland's Media Design School.

A The experience, talent and knowledge within the faculty greatly benefits students, many of whom have worked on blockbuster films

B Media Design School alumni can be found all around the world, working with top studios such as Weta Digital, Animal Logic and DreamWorks Animation

Extra Credit

The BA in Art & Design isn't the only course offered by the Media Design School in the 3D animation and VFX fields. Two specialist 16-week courses are also available: After Effects for Motion Graphics and Maya For 3D Modelling, which explore each program in much greater detail than the BA. Longer 40-week diplomas are also offered in both the 3D Animation and Visual Effects & Motion Graphics courses.

If you're more interested in the videogame side of things, then Media Design School also offers a BA in Software Engineering and one in Creative Technologies, which boil down to game programming and game art respectively.

> "Media Design School is a leading light... when it comes to training graduates that are capable, professional and ready to hit the ground running"
>
> **Matt Aitken – Weta Digital,** visual effects supervisor

Course details

Name Bachelor of Art & Design
Length Three years
Website www.mediadesignschool.com/courses/3d-vfx/bachelor-art-design
Fees $8,030 (NZD, per year) | $20,000 (for international students)
Entry requirements Applicants must have at least 42 NCEA credits at Level 3 (with at least two subjects scoring a minimum of 14 credits) over a maximum of four subjects. A minimum of 12 NCEA credits must also be achieved at Level 2 English and 14 NCEA credits at Level 1 Mathematics. Applicants 20 years or over may apply for entry through the presentation of a portfolio and an interview.
Portfolio requirements Paintings, illustrations, photography, graphic design, 3D modelling or visualisation, CAD drawings, knowledge in graphical software such as Photoshop and experience with 3D software is advantageous but not essential.

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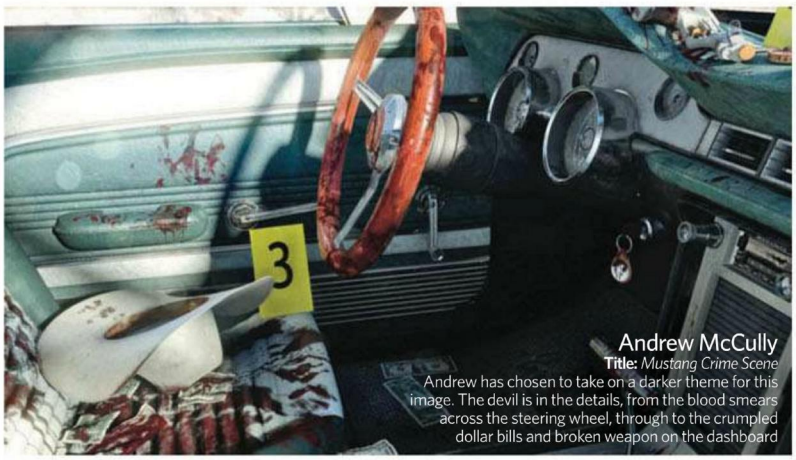
STUDENT GALLERY

Over the years, students on the BA of Art & Design have created many varied pieces of work, from 3D models and visualisations through to short films that can boast of up to 60 visual effects shots



Andrew McCully
Title: *Mustang Crime Scene*
Andrew has chosen to take on a darker theme for this image. The devil is in the details, from the blood smears across the steering wheel, through to the crumpled dollar bills and broken weapon on the dashboard

Moritz Schlitter
Title: *The Aristo Kids*
There's something fantastically mischievous about Moritz's image – from the expression on the kids' faces to their gleeful playing of instruments late into the night

C Naeri Lee
Title: *Fish Boy*
Naeri's shadowy image immediately conjures feelings of imprisonment. This suggests there is more to this image

D Graduating class of 2012
Title: *Dr Grordbort Presents: The Deadliest Game*
"These guys have brought my *Dr Grordbort's* sci-fi world to life, and the results are stunning," says Weta's Greg Broadmore

E Lauren Day
Title: *Bird*
Lauren's use of colour in this image is spectacular; the twilight blues and purples are offset by the bright, fiery oranges

F Graduating class of 2011
Title: 'First Contact'
After a greenscreen shoot, students tracked heads and built CGI versions of the real actors in this short

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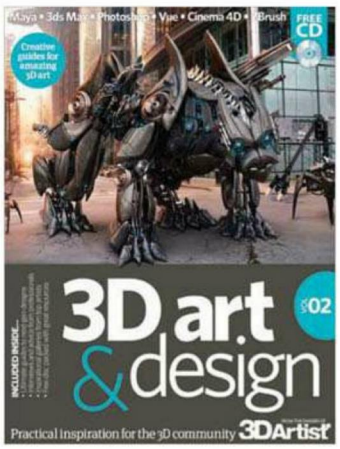

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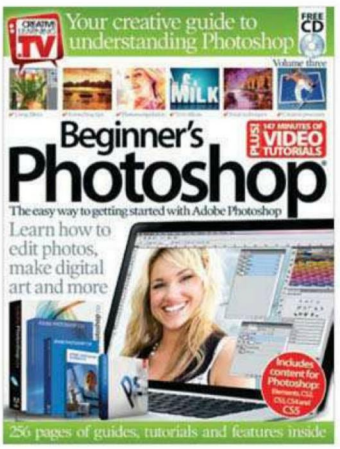
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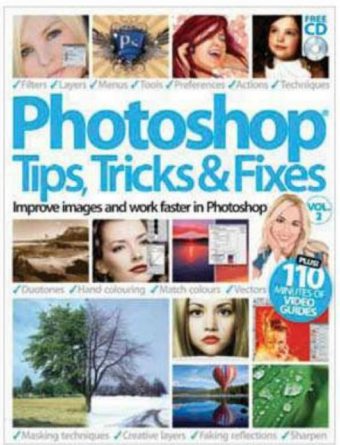

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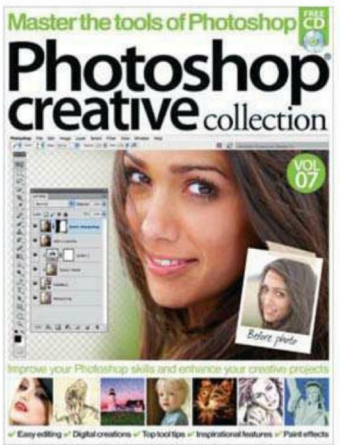

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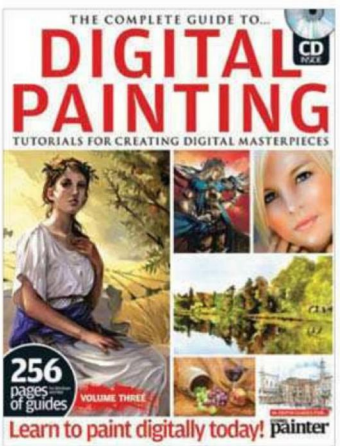
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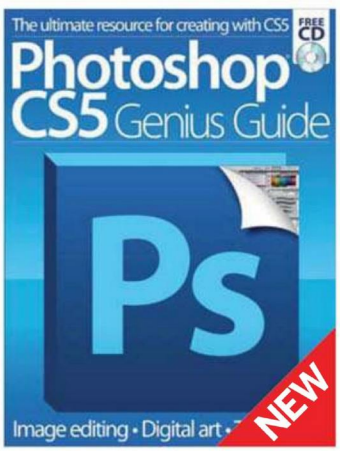

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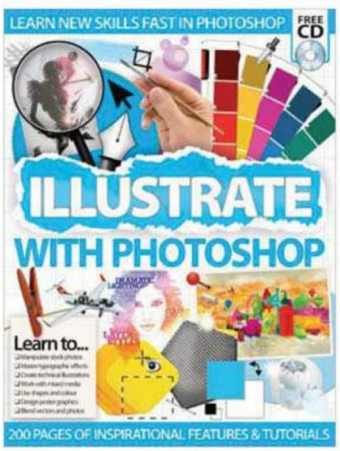

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